Architecture, *ma ka ʻŌlelo Hawaiʻi*:

Relearning how to think about design in Hawaiʻi using Hawaiian language as a foundation

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December 2013

Submitted toward the fulfillment of requirements for the Doctorate of Architecture Degree

School of Architecture
University of Hawaiʻi at Mānoa

Doctorate Project Committee
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Jonathan Ching

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We certify that we have read the D.Arch Project and that, in our opinion, it is satisfactory in scope and quality as a D.Arch Project for the degree of Doctorate of Architecture in the School of Architecture, University of Hawai'i at Mānoa.

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Abstract

Architecture in a contemporary Hawai'i portrays a sense of place that is often incongruous with the natural environment. As indigenous cultures are increasingly recognized for their traditionally harmonious relationship with the natural environment, their knowledge becomes more and more valuable to design disciplines seeking to improve the impact of the built environment through place responsive design. Implementing traditional knowledge in the design process begins to remediate the degradation of natural and cultural resources caused by poor design. In Hawai'i, indigenous knowledge is manifest in the Hawaiian language as it explicitly communicates a fundamental consciousness of the land.

The research in this thesis institutes a specific three-part methodology which organizes and elucidates the relationship that exists between architecture and language. It identifies language elements, their implications, and potential architectural translation. Under the pretense that language is the expression of native thinking as a product of the environment, this methodology facilitates place responsive design through the implementation of native perspective. It serves as a model for formally translating a Hawaiian worldview into design specific to Hawai'i.

This thesis identifies the Hawaiian language as a medium for interpreting native Hawaiian worldview with the ultimate purpose of informing a more place responsive architecture in Hawai'i. To this end, elements of the Hawaiian language are examined for their inherent implications of place. This investigation develops a classification of information that exists in the language. It is a system of three layers which successively reveal a uniquely Hawaiian worldview. Each layer contributes to the design process at a different scale. The research culminates in a new design process informed by a Hawaiian worldview as communicated through language and the layers that exist within it. This new process is implemented in a conceptual design for a Hawaiian-based public charter school employing the significant concepts revealed in each layer of information.

The intent of this research is to initiate the discussion on approaching the challenge of place responsive design from the perspective of language. Translating the mutualistic relationship with the natural environment that is inherent in indigenous worldview into design is a critical step towards achieving a sustainable and appropriate sense of place in architecture for Hawai'i.

Introduction

I kua naʻu.

A burden for me.

-ʻŌlelo Noʻeau #1218[1]

[1] Mary Kawena Pukui, *ʻŌlelo Noʻeau: Hawaiian Proverbs and Poetical Sayings* (Honolulu: Bishop Museum Press, 1983), 133.

Inspiration

This Hawaiian proverb describes *kuleana* 'privelege, responsibility' a concept which gives life to the development of this thesis. I have spent a lifetime eating from, learning from and growing from this place and while it is not *koko* 'blood' that connects me to Hawai'i, I know my *kuleana* is here. I am still only beginning to understand all that *kuleana* involves and this thesis is a realization of what I have learned so far.

Studying the compelling impact that architecture has the potential to have in Hawai'i is a powerful approach towards responding to *kuleana*. The built environment can and has historically proven to be detrimental to the natural environment. The *Kānaka Maoli* 'indigenous people' of Hawai'i have for over 1000 years developed practices that stimulated and created balance. It is impossible to ignore anymore the perpetual depletion of resources, both environmental and cultural, due to insensitive design. In order to begin restoring this balance, it is necessary to transform the way we think about design in Hawai'i. Establishing a sense of place through design here is about more than Hawaiian motif. It requires both an acute and holistic understanding of traditional values, a kuleana that belongs to all who live in Hawai'i.

As an expression of worldview, the Hawaiian language possesses the insight of a people who intimately understood how to maintain a balanced relationship with the *'āina* 'land'. Most commonly interpreted as land, the boundaries of *'āina* actually extend far beyond the water's edge. A deeper understanding of the language can, therefore, reveal significant ideas implicit in Hawaiian thought. My passion for learning the Hawaiian language began independently from my interest in architecture but with a consistent goal of understanding how to appropriately fulfill my *kuleana*.

After years of simultaneous focus in both disciplines, language and architecture have naturally merged as the foundation for my research.

Background

Sense of Place?

A critical assessment of Hawai'i's built environment today exposes disappointing oversight of the unique characteristics of our natural environment often resulting in poor design. Defining and applying the concept of "sense of place" in design has yielded a wide range of responses, with complete ignorance of the concept weighing heavily at one extreme and relatively sensitive solutions occurring less frequently at the other. Elsewhere on the spectrum, is the all too familiar, less than adequate afterthought type of response, where reliefs of non-native plants on the façade of a building serve as the only indicator of a "Hawaiian" sense of place in the whole design.

A recent and impressive example of this type of response is the newly opened 'Aulani Disney Hawai'i Resort in the western region of O'ahu. Comparatively, the design aesthetically boasts a more elaborate investigation and interpretation of "traditional" Hawaiian architecture than previous attempts in resort architecture, but the conflict remains; resort architecture is simply not Hawaiian, by any traditional standard. The design perpetuates the emphasis and reliance on aesthetics to provide a superficial sense of place, ultimately resulting in an artificial experience of Hawai'i.

While it is not the intention of this thesis to invalidate resort architecture in Hawai'i, the finitude of Hawai'i's natural resources necessitates far more sustainable solutions in design. It is the argument of this thesis that the traditional knowledge of the native people of Hawai'i is inclusive of, if not synonymous with, today's definition of sustainability, as evidenced by language traditions loaded with references to the land as the source of life. In a presentation on Hawaiian epistemology, native Hawaiian educator, Manulani Meyer explained that the Hawaiian *mauli* 'life force' is synonymous with sustainability.[2] Executing sustainable design and achieving a true sense of place are attainable goals and both derive from sensitive articulations of place responsive design.

[2] Manulani Meyer, "'Ike 'Āina: Sustainability in the context of Hawaiian epistemology," Vimeo video, 1:05:02, posted by The Kohala Center, 2009, http://vimeo.com/7910477.

Research Questions/Hypothesis

Nānā i ke kumu 'Look to the source'

Nānā i ke kumu is a well-known Hawaiian adage that points to the "source" as a guiding principle. In today's rapidly changing environment, cultures all over the world are seeking traditional knowledge from indigenous peoples who have proven through time to live in harmony with the land. The languages of these indigenous cultures are informed by and are unique to the places they belong to and thus communicate the specific values of each place. Ngugi Wa Thiong'o, a Kenyan writer and literary and social activist, explains the relationship of language and culture as follows:

> Culture embodies those moral, ethical and aesthetic values, the set of spiritual eyeglasses, through which they [human beings] come to view themselves and their place in the universe. Values are the basis of a people's identity, their sense of particularity as members of the human race. All this is carried by language.[3]
>
> …the particularities of the sounds, the words, the word order into phrases and sentences, and the specific manner, or laws, of their ordering is what distinguishes one language from another. Thus a specific culture is not transmitted through language in its universality but in its particularity as the language of a specific community with a specific history. Written literature and orature are the main means by which a particular language transmits the images of the world contained in the culture it carries.[4]

In Hawai'i, specifically, the traditional knowledge is depicted by the *ipu* 'gourd.' This traditional metaphor is portrayed in several *'ōlelo no'eau* regarding knowledge and sometimes a lack thereof. *He ipu ka'eo* 'a full calabash' references a knowledgeable person. Conversely, *he ipu pala 'ole* 'a calabash without a dab [of poi] in it' speaks of an ignoramus.[5] *He ipu ho'olina mai nā kūpuna mai* 'an inherited container from the remotest ancestress' depicts the *ipu* as an ancestral inheritance, as is the knowledge within it.

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[3] Ngugi Wa Thiong'o, *Decolonising the Mind: the Politics of Language in African Literature*, (London: James Currey, 1997), 14-15.
[4] Ibid., 15.
[5] Pukui, *'Ōlelo No'eau*, 73.

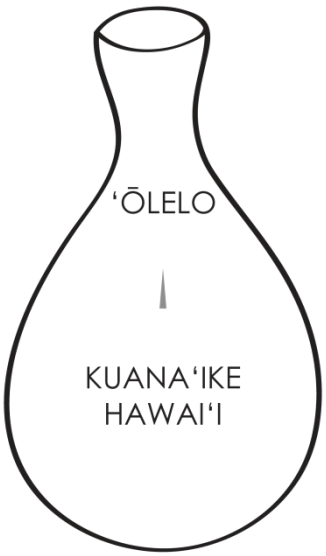

Figure 1: Ipu Kuanaʻike, Gourd of Hawaiian Knowledge

Figure 1 illustrates the figurative gourd as the container for Hawaiian perspective and the medium, Hawaiian language, through which it is communicated. The primary goal of this thesis, then, is to portray the traditional language of a place as a valuable source of knowledge that can and should inform sensitive solutions for design. This project investigates how the language of Hawaiʻi communicates *kuanaʻike Hawaiʻi* 'Hawaiian worldview' and how it can inform more contextually conscious design.

This research addresses a series of three inquiries. First, *What are the cultural implications of Hawaiian language that reveal how to responsively and responsibly think about design in Hawaiʻi?* Second, *What is (are) the relationship(s) of traditional language to traditional architecture?* Finally, *How does one formalize these concepts for design in a contemporary Hawaiʻi?* These questions are based on the premise that a deep understanding of the Hawaiian language reveals a thought pattern specific to Hawaiʻi, seeking to explain how a place can more directly inform a design. Thus, the hypothesis: if the implications of place in Hawaiian language are understood, then one can design specifically to a Hawaiian worldview.

Methodology

The methods of research for this thesis are selected to develop the primarily theoretical topic of inquiry. While the specific methods will be identified, none is independently used from another.

This thesis begins with a brief analysis of the current sense of place in design, looking at three examples of designs for Hawaiian schools and how these buildings respond to place. It also looks at Māori language and Māori architecture as a model for understanding the relationship between language and architecture. This research yielded a three-part methodology entitled, Papa Hoʻohuli ʻŌlelo ʻlanguage transforming chart;' a table for organizing and identifying this relationship. This method is employed throughout this thesis as it helps to establish the link between implications of language and their applications in architecture

This investigation warrants a specific way of thinking about the research process which, throughout this project, is informed by the Hawaiian concept of *Papakū Makawalu*. It is a research method that inspires an immersive investigative process that requires one to consider a subject from all different perspectives in order to fully understand it. "The Hawaiian mind works with a cyclic momentum forward, knowing that here is a sequential progression in all living things."[6] Not only should Hawaiian worldview inform the outcome of this research but it should in fact inform the research process itself.

A general overview of the Hawaiian language and the patterns that suggest important ideas in Hawaiian perspective offers a reference for designing with language. These concepts are explored in greater detail in the site research chapter, Chapter 6, when the research becomes more site specific. Ultimately, the conclusions from each phase of research serve to inform a new design process based on the Hawaiian language, entitled Hoʻohuli ʻŌlelo Design Process explained in detail in the synthesis chapter, Chapter 7.

[6] Dr. Pualani Kanakaʻole Kanahele, *The Culture Plan For Kanaloa Kahoʻolawe*, (Edith Kanakaʻole Foundation, 2009), 33.

Existing Knowledge

This literature exploration is intended to reveal the available sources that aid in the development of this project. There is a minimal amount of sources available on the relationship between language and architecture; even less research specific to Hawai'i. There is, however, a wealth of knowledge recorded on *'ōlelo Hawai'i* 'the Hawaiian Language.' Likewise, sources exist that examine the traditional architecture of Hawai'i. This thesis, therefore, initiates documentation of the specific relationship that manifests between the two disciplines of the Hawaiian language and architecture in Hawai'i. It is meant to serve as a reference for relearning how to think about design in a very unique place.

On 'Ōlelo Hawai'i

Mary Kawena Pukui, a native Hawaiian language scholar, was profoundly instrumental in making resources available through extensive ethnographic research which included the collection and recording of Hawaiian oral traditions. In addition to her role in the writing of the *Hawaiian-English Dictionary*, her influence in the compilation of *Place Names of Hawai'i* offers valuable information about the unique characteristics of specific places in Hawai'i.[7]

She explains the Hawaiian concept of *kaona* 'multifaceted meaning' in *The Polynesian Family System in Ka-'u*, Hawai'i as a Hawaiian way of poetically saying something without directly saying it giving examples of phrases with hidden meanings.[8] Her collection of Hawaiian proverbs in *'Ōlelo No'eau*, is filled with examples of *kaona* and other informative clues about Hawaiian perspective. Her contributions also provide information about what is said in Hawaiian and what isn't and how it is said. These ideas are examined to identify cues that are relevant to a contemporary architecture. The extensiveness of Pukui's work contributes significantly to the research done in this thesis.

Alternatively termed, *'Ōlelo Makuahine*, literally 'mother language,' the Hawaiian Language is significantly more than a means of communication. The spoken word possesses *mana* 'divine power' which can influence what and how things happen. The influence of this *mana* in the Hawaiian language also lends itself to design decisions with the potential to yield both positive and negative results.

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[7] M. K. Pukui, S. H. Elbert, and E. T. Mo'okini, *Place Names of Hawai'i* (Honolulu: University of Hawai'i Press, 1966).

[8] E. S. Craighill Handy and Mary Kawena Pukui, *The Polynesian Family System in Ka-'u, Hawai'i* (Tokyo: Charles E. Tuttle Co., Inc., 1972).

On Language and Architecture

Of the few sources that focus on the topic of language and architecture, most of them refer to the structure of a culturally nonspecific language as a parallel for the structure or spatial understanding of architecture as architecture professor, Nana Last depicts Wittgenstein's philosophy of language and landscape:

> Language is a labyrinth of paths: you approach from one side and know your way about; you approach the same place from another side and no longer know your way about.[9]

In addition, many of these sources are from a Western perspective revealing a historically conflicting view that might typically place little priority on the natural elements of a place towards informing design. While *Architecture and Language: Constructing Identity in European Architecture* provides an analysis of the relationship between the language and architecture specific to that region, it is used as merely an analogy to explain the organization of different architectural elements.[10] This characteristically independent relationship between language and architecture is, however, telling about the culture's view of language in general.

In Māori culture, the significance of language is viewed similarly to that of Hawaiian culture. With a distinct architecture that still survives and is still relevant to the cultural practices of the Māori people, Māori architecture provides a powerful model for analyzing the relationship between *te reo* Māori 'Māori language' and its traditional architecture.

> Modernism has repressed Māori architecture, which is often treated as a decorative coating to a *Pākehā* 'European' building, in the same way as *te reo* is invoked to give significance and identity to formal occasions in Aotearoa New Zealand; and the parallel with language is one way of attempting to understand the architecture. All languages have a syntax that organizes what is said or done. Māori is organized differently to English, regardless of what words are actually used. Similarly, Māori architecture is structured differently to European architecture, which is based on the grid of squares, rooms, and walls. Māori architecture is organized around sheltering roofs and open spaces.[11]

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[9] Nana Last, *Wittgenstein's House* (New York: Fordham University Press, 2008), 138.
[10] Georgia Clarke and Paul Crossley, *Architecture and Language: Constructing Identity in European Architecture c. 1000-c.1650* (Cambridge: Cambridge University Press, 2000)
[11] Deidre Brown, *Māori Architecture: from fale to wharenui and beyond* (Penguin Group: New Zealand, 2009), 15.

On Hawaiian Architecture

Research done by David Malo in *Ka Moolelo Hawaii* and *Hawaiian Antiquities: Moʻolelo Hawaiʻi* provides insight into terminology of Hawaiian architecture concerning construction methods, structural elements and spatial significance.[12] Pacific Hawaiʻi historian Russell Apple does extensive documentation on the traditional Hawaiian house in his dissertation, *Hawaiian Thatched House: Use, Construction, Adaptation*.[13] These resources create a foundation for beginning to understand the relationship between Hawaiian language and architecture in Hawaiʻi.

Design Project

Testing the Argument

Following the investigation of the first two research questions, this thesis culminates in the final inquiry where the argument is tested in a design solution for a school with a primarily Hawaiian focus. As schools are a beacon for knowledge, so too should they be an educational example in their architecture. Hakipuʻu Learning Center (HLC), currently located on the windward side of Oʻahu Island, is a public charter school where understanding sense of place is at the core of its curriculum. With an enrollment that exceeds the available capacity of its current facility, the school is limited in its potential for growth, as well as the students' potential for learning, therefore requiring a new facility. The needs of HLC offer a design problem that speaks specifically to the heart of this thesis.

Site Context

In reverence to the school's namesake, a parcel in the *ahupuaʻa* 'traditional land division' of Hakipuʻu was selected as one site for experimentation. Maintaining the program as a constant, a second site at Lēʻahi, or Diamond Head, unique in its own character, was selected with the intent of exploring and comparing how two very distinct places can inform a design for the same program. Hakipuʻu and Lēʻahi offer the experiment both a rural location and an urban one, respectively, each with different features of *ʻōlelo Hawaiʻi* traditions.

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[12] Davida Malo, *Ka Moolelo Hawaii*. trans. Malcolm Nāea Chun. (Honolulu: First People's Production, 2006) and David Malo, *Hawaiian Antiquities: Moʻolelo Hawaiʻi*. trans. Nathaniel B. Emerson, (Honolulu: Bishop Museum Press, 1951)

[13] Russell A. Apple, Hawaiian Thatched House: Use, Construction, Adaptation, (Office of History and Historic Architecture: San Francisco, 1971.)

Conclusion

The relationship between language and architecture has previously been studied. No references exist, however, that specifically consider Hawaiian language as a design guide for architecture in Hawai‘i. While the design portion of this thesis helps to test the argument that the language should inform the architecture, the more important contribution are the methods that the research yields which help to organize a design process fundamentally informed by the Hawaiian language. Therefore, although the design project is limited to the individual design style of the author, this work offers a design process that has applications well outside the limits of this thesis.

CHAPTER 1: The Common Sense of Place

Ke ēwe hānau o ka ʻāina.

The lineage born of the land.

A native Hawaiian who is island-born and whose ancestors were also of the land.

-ʻŌlelo Noʻeau #1691[14]

[14] Pukui, *ʻŌlelo Noʻeau*, 182.

1.1 Introduction

There is a history of buildings in Hawai'i which are commonly, and perhaps inappropriately classified as "Hawaiian." While the ultimate goal of this research is not to explicitly define a "Hawaiian" architecture, in order to achieve a sense of place in design, it is essential to identify architecture that responds explicitly to this place. The current state of architecture in Hawai'i, while in some cases trending toward environmentally considerate design, lacks responsiveness to the other dimensions of place.

In an article comparing different studies on the phenomenology of "place" and "sense of place," the general description of "place" involves a particular space that is given meaning and value by those who experience it.[15] The defining features and characteristics of a place contribute significantly to the identity of the group which dwells there. The relationship that exists between the place and the dweller is important in this definition in that neither is independent of the other; a place is defined by its users and in turn the users are defined by the place. 'Sense of place,' then, is the emotional and psychological recognition of these defining features as being of or belonging to a certain place. The greater the emotional attachment to a particular place, the more critical a strong sense of place becomes towards maintaining the quality of the environment and the integrity of the place. As two interdependent entities, user and place, are both mutually influential on each other.

The *'ōlelo no'eau* that opens this chapter expresses the belief that Hawaiians were born from the land and are thus, extensions of Hawai'i. A Hawaiian sense of place can then be gleaned from a glimpse into Hawaiian perspective as the native people are descendants of the place itself.

> By the Kumulipo, we Hawaiians know that we are the descendants of the earth mother and sky father, as well as all living things of the Pacific that are also our *'Aumakua*, or family guardians. As the younger siblings of the Hawaiian islands, we are inextricably part of this land, and born with the responsibility to *mālama*, or to love and care for the land, for the earth, for the *Akua*, and *'Aumakaua*.[16]

The intention of this thesis is to contribute to the architecture profession by presenting a method for designing place specific architecture that is implemented from the very beginning of the conceptual

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[15] Mina Najafi, and Mustafa Kamal Bin Mohd Shariff. "The Concept of Place and Sense of Place in Architectural Studies," *International Journal of Human and Social Sciences* 6:3 (2011): 187.
[16] Lilikalā Kame'eleihiwa. "Kumulipo." PDF file. (1999) http://www.geo.cornell.edu/hawaii/AIS3400/Kameeleihiwa_L_Kumulipo.pdf (Accessed December 2013): 16.

design phase, and allowing for the concept to inform the rest of the design process. When place is allowed only to inform certain phases of the design process, the design as a whole is fragmented. While some elements of the building may visually express a Hawaiian concept (motif), other elements may be solely informed by a "Western" idea. This chapter discusses existing examples of architecture which evoke a sense of place at varying degrees and examines the different methods employed.

1.2 Hawaiian Schools as Educational Models

As schools are set up for the purpose of educating, they are in position to be influential examples of conscious design. Schools which specialize in Hawaiian education are especially important examples of awareness of place as the curricula are specifically rooted in Hawai'i. In this section, three designs for Hawaiian schools are assessed for their varying degrees of sense of place.

1.2.1 Kamakakūokalani Center for Hawaiian Studies - UH Mānoa

After a seven year process riddled with controversy and protest, the construction for Kamakakūokalani Center for Hawaiian Studies at the University of Hawai'i, Mānoa campus was finally completed in 1996. At its conception, the plans for the center encroached on the existing *lo'i kalo* 'irrigated taro fields' requiring the temporary removal of part of the *lo'i*, which eventually resulted in the permanent loss of the portion "temporarily" removed. A lawsuit was filed against the University arguing for the protection of the historic site, which was eventually dropped with no revisions made to the plans for the building.[17]

The building's namesake, Gladys Kamakakūokalani 'Ainoa Brandt, was a Native Hawaiian educator, who helped found the Center for Hawaiian Studies. Her contribution to the perpetuation of Hawaiian culture serves as inspiration to Hawaiian scholars. One interpretation of the name, Kamakakūokalani is 'the upright eye of heaven', making both her name and her contribution, a sound foundation for the school to be built upon. [18]

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[17] Pat Omandam, Honolulu Star-Bulletin Local News. "Hawaiian style: The University of Hawaii's new Center for Hawaiian Studies is a showcase of the island's cultural heritage." http://archives.starbulletin.com/96/08/13/news/story1.html (Accessed March 2013).

[18] University of Hawai'i at Mānoa. "Kamakakūokalani." Hawai'inuiākea School of Hawaiian Knowledge. http://manoa.hawaii.edu/hshk/kamakakuokalani/history-op/ (Accessed December 2013).

Upon completion of the center, Kauahikaua and Chun, the architecture firm responsible for the design, had created a building distinctively Hawaiian in character with motifs that pay homage to traditional Hawaiian architecture. It boasts pitched roofs of copper with separate forms housing different functions, a concept reminiscent of the traditional *kauhale* 'group of houses comprising a Hawaiian home.'[19] It is a two-story design with a *hālau* 'meeting house' and classrooms on the lower level, and offices, classrooms, and a library on the upper level all oriented on a U-shaped plan that is surrounded and seemingly protected by massive rock walls. In the center of the facility is a burial mound containing the remains of Native Hawaiians, believed to predate Western arrival in Hawai'i. Next to the burial mound is an atrium-like element opening the lower level to the upper level illustrating the spiritual connection between *kanaka* and *akua*.

Figure 2: View from Dole St. of rock walls and copper roofs[20]

Figure 3: Atrium on first level facilitates connection between kanaka and akua.[21]

[19] Pukui and Elbert, *Hawaiian Dictionary,* "kauhale."
[20] Walker, Lori K, photographer. *No title*. Digital photograph. Honolulu, 2005.

The elements integrated into the design for the center amount to an aesthetically and functionally Hawaiian building. While many of the design gestures in the building rely on visual recognition to stimulate a Hawaiian atmosphere, the atrium component in the building is an effective example, in its scale and location, of a designed space that offers the user a uniquely Hawaiian spatial experience without the aid of a Hawaiian event or activity. Aesthetically, it is not immediately recognizable as a traditional Hawaiian architectural element, yet is successful in creatively facilitating a powerful moment for the user.

1.2.2 Kaʻiwakīloumoku Hawaiian Cultural Center - Kamehameha Schools, Kapālama

The Hawaiian Cultural Center at Kamehameha Schools Kapālama Campus on Oʻahu was a vision of revered Hawaiian leader, Myron Pinky Thompson. It was completed in 2012 and thus was the birth of Kaʻiwakīloumoku. This name was an epithet of Kamehameha I, translating to 'the *ʻiwa* bird that hooks the islands.' It compares the *ʻiwa* to Kamehameha's uniting the islands under one rule.[22] As the name of the Cultural Center, Kaʻiwakīloumoku alludes to the linking of fragments of traditional knowledge and ways of the Hawaiian people into a unified whole. Built for the preservation and perpetuation of Hawaiian culture, the addition to the campus serves as a gathering place for cultures from across Polynesia and around the world, a concept inspired to Thompson by the ceremonial welcoming space on the *marae* of the Māori people. The Cultural Center is dedicated to providing learning opportunities of Native Hawaiian knowledge and traditions for the purpose of maintaining a vibrant future for Native Hawaiians.[23] Such a mission required a uniquely Hawaiian design for the facility.

Sited at the *piko*, or central point, of Kapālama campus, the design for the facility aims to address traditional Hawaiian values. Three components make up the design of the Cultural Center; the *hale mana*, an indoor ceremonial space; the *hale ʻaha* or the assembly hall; and Kūkulu o Kahiki, the courtyard designed for outdoor events and gatherings.

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[21] Ibid.
[22] Maurice Kondo, "Designing for Hawaiian Culture Education" (presentation, Hawaiʻi Convention Center, Honolulu, HI, Oct. 2012).
[23] Kamehameha Schools, "Kaʻiwakīloumoku: Hawaiian Cultural Center," http://apps.ksbe.edu/kaiwakiloumoku/ (accessed March, 2013).

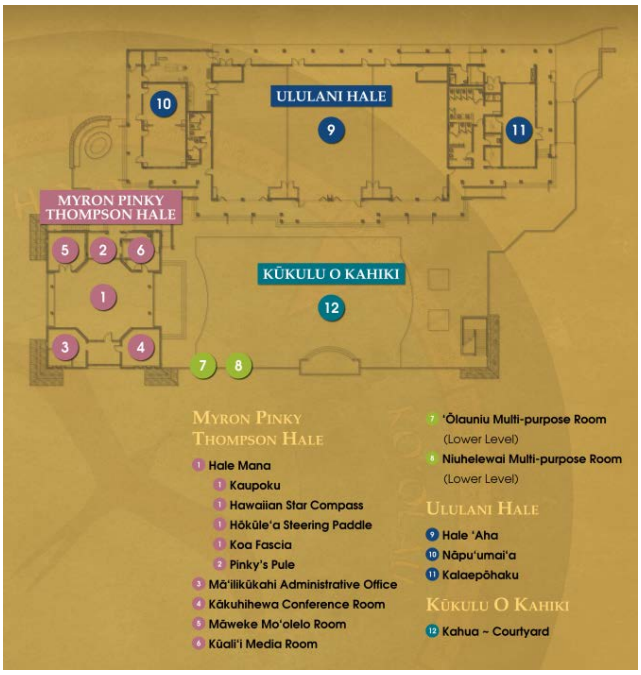

Figure 4: Site plan of Ka'iwakīloumoku[24]

According to center designer, Maurice Kondo, principal of INK Architects in Honolulu, the *hale mana* facilitates traditional protocol of entering from the east and facing the west as it is oriented on a north-south, east-west axis. It was the intent of the designer to evoke a Hawaiian architecture through proportion and profile.[25] The building's silhouette is reminiscent of a traditional *hale hālāwai* 'Hawaiian meeting house' with a high pitched roof made of copper, a skylight that promotes the vertical relationship between man and the heavens, and an openness to the outdoors which fosters a connection to nature. Aesthetically, the design speaks to traditions of Hawaiian architecture. Functionally, it facilitates the programmatic needs of the center as a gathering place for educating visitors on Hawaiian tradition.

It is the few decisions that were compromised for various reasons, whether budget or time constraints, which detract from the comprehensive design and compromise the user experience. For example, major excavation was required to accommodate the site plan for the center necessitating a large retaining wall behind the assembly hall, a decision somewhat irreverent of the existing site. The

[24] Kamehameha Schools. *Ka'iwakīloumoku Hawaiian Cultural Center Event Brochure.* http://apps.ksbe.edu/kaiwakiloumoku/hcc/Opening (Accessed December 2013).
[25] Kondo, "Designing for Hawaiian Culture Education" (presentation, Hawai'i Convention Center, Honolulu, HI, Oct. 2012).

architects resolved to spray the face of the wall with gunite to create a visual reference to a traditional Hawaiian rock wall, resulting in a merely superficial "Hawaiian" design element.

The center inarguably provides an atmosphere that is filled with *mana* and serves to perpetuate Hawaiian culture. Invaluable examples of Hawaiian art and craft are located at the center. The original steering paddle of Hawaiian seafaring canoe, Hōkūleʻa, is housed in the *hale mana* whose floor depicts the star compass used for navigation as additional means of educating visitors. It is uncertain however, whether this atmosphere of *mana* is architecturally designed or merely a consequence of the users and the activities housed within.

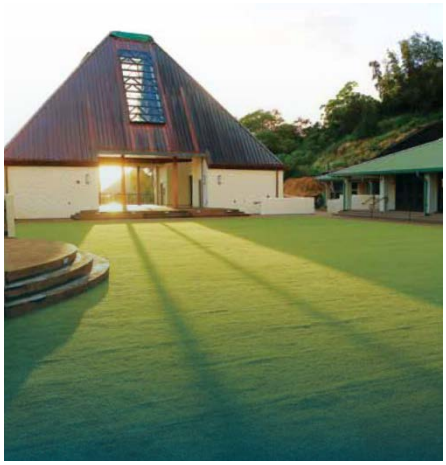

Figure 5: View of *hale mana*[26]

As many of the architectural design decisions were made primarily to stimulate visual recognition of Hawaiian traditions, the experiential recognition of Hawaiian traditions relies principally on the activities of the users that occur post construction. So too, the artistic and historic pieces simply housed by the building serve as the most educational elements of the center. Noteworthy of designed success is the *hale mana* whose orientation on the east-west axis elegantly frames the path of the sun throughout the day, fostering a strong visual connection between the user and the environment. Here is an important acknowledgment of a significant element in the Hawaiian worldview.

[26] Kamehameha Schools. *Kaʻiwakīloumoku Hawaiian Cultural Center Event Brochure.* http://apps.ksbe.edu/kaiwakiloumoku/hcc/Opening (Accessed December 2013).

1.2.3 Ka Haka ʻUla o Keʻelikōlani Hawaiian Language College - UH Hilo

In February of 2011, the groundbreaking was held for phase 1 of construction of the new permanent facility for Ka Haka ʻUla o Keʻelikōlani Hawaiian Language College at the University of Hawaiʻi at Hilo. Since 1998, the growth in enrollment of the Hawaiian Studies programs there has increasingly demonstrated a need for a permanent facility, as the faculty and staff had thus far been dispersed in several different locations across the campus. When the legislature approved funding for the Hawaiian Language College in the 2010 session, a new building could finally be realized.[27]

Named for Princess Ruth Keʻelikōlani, descendant of Kamehameha I, the school serves as a beacon of knowledge and perpetuation of Hawaiian language and traditions soliciting a design that facilitates and embodies this purpose. WCIT Architecture attempts to achieve this in their design proposal for the building that is currently under construction.

The 37,000 square foot, two-story building is sited at the *piko* of the Hilo campus, acknowledging the significance of the Hawaiian Language College within the greater university community. The programmatic spaces include 6 classrooms, a performing arts auditorium that is transformable into 3 separate spaces, a ceremonial plaza, a library, conference rooms, a computer lab, student and faculty lounges, and 30 offices. The design also offers opportunities for outdoor classrooms including courtyards and a *pā hula* ʻplatform for hula.ʼ

[27] University of Hawaiʻi at Hilo. "College of Hawaiian Language marks new chapter with historic groundbreaking." UH Hilo Press Release, February 2011. http://hilo.hawaii.edu/news/press/release/1037 (accessed March 2013).

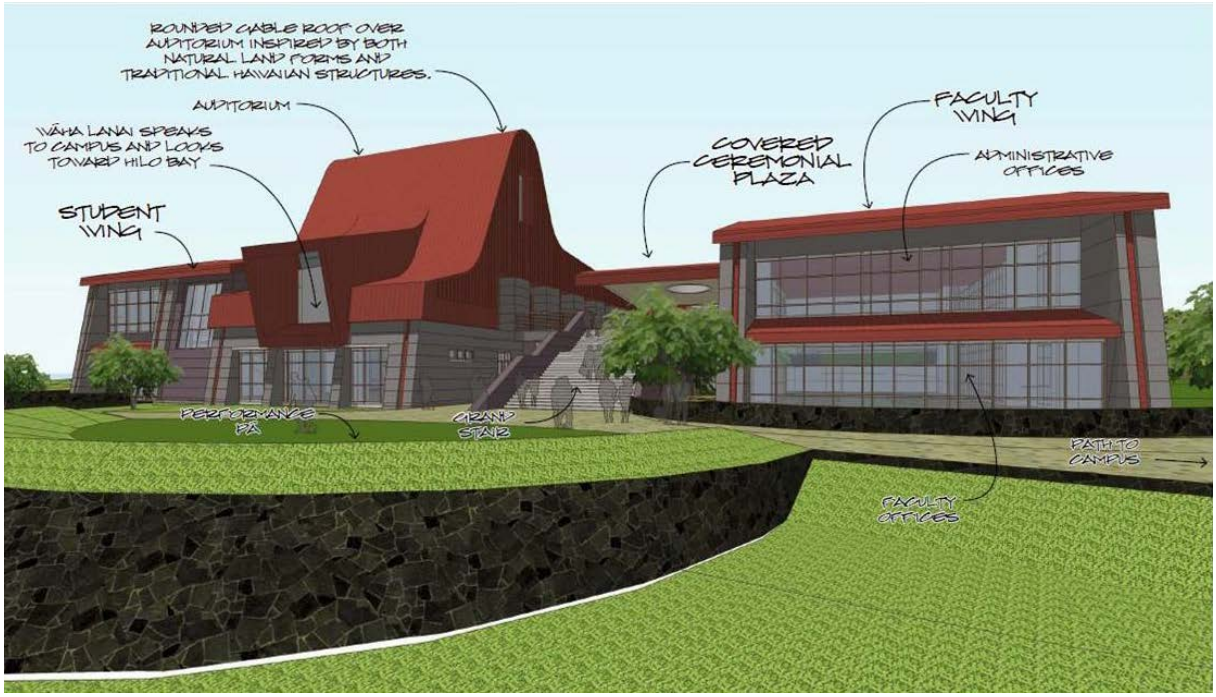

Figure 6: Rendering of proposed Hawaiian Language College at UH Hilo.[28]

With WCIT as the architect, the building design committee also included faculty and staff of the college as well as local consultants from the American Institute of Architects (AIA) whose collaborative effort resulted in an award winning design. WCIT put together a presentation illustrating the building's unique design elements which earned the 2010 AIA Honolulu Design Award for "Commissioned Work to be Built." "'O ka 'ōlelo ke ka'ā o ka mauli," focused the architects' design goals with its meaning, 'language is the fiber that binds us to our cultural identity.'[29] One element particularly highlighted in the presentation is the auditorium space. The designer describes it as "a physical representation of Ka Ao'ao 'Ōlelo [*sic*. 'Ao'ao], the language element of *mauli* Hawai'i, Hawai'i's cultural identity.[30]" The large bay window at the focal end of the auditorium is meant to represent the *waha* 'mouth' and *alelo* 'tongue,' which opens toward the rest of

[28] University of Hawai'i at Hilo, JPEG image. http://hilo.hawaii.edu/blog/chancellor/files/2011/02/Bldg.jpg (accessed March 2013).
[29] University of Hawai'i at Hilo. "College of Hawaiian Language Building Wins Prestigious Design Award," http://vcadmin.uhh.hawaii.edu/documents/AIAAwardforCHLBuildingDesign_ForPosting_000.pdf (accessed March 2013).
[30] University of Hawai'i at Hilo, PDF file. http://www.uhh.hawaii.edu/uhh/planning/uploads/HawaiianLanguageCollege_pres_220.pdf (accessed March 2013).

the UH campus and Hilo town below. Two clerestory windows at either side of the *waha*, are said to represent the *pepeiao* 'ears.'

This analogy to the head resonates with the personification of structural elements in traditional Hawaiian architecture (elaborated on in Chapter 5) and uses the appropriate body parts speaking to language as the primary focus of the college. Functionally, however, the analogy of the *waha* and *alelo* and the *pepeiao* are not consistent. While the bay window, or "*waha*," opens the performance space of the auditorium to the rest of the campus and Hilo, there is no designated audience space outside fronting the window creating only a symbolic suggestion that the *waha* and *alelo* "speak" to the rest of the campus. Similarly, the clerestory windows, or "*pepeiao*," on either side of the *waha,* hardly function as ears or any other information gathering organ of the body resulting in a mostly aesthetic and awkward resemblance of a face with a mouth and ears.

WCIT's presentation also highlights the building's roof form, said to resemble *pāhoehoe* lava, in its smooth rolling form. It is also meant to evoke "hints of the traditional hale, mountains, or the red scarves of Princess Ruth Keʻelikōlani."[31] The architect leaves this open for interpretation. While this gesture of multiple meanings is consistent with the Hawaiian language concept of *kaona* 'multifaceted expression,' this explanation implies arbitrary reasoning for the roof form as the design decision seems less than deliberate. The issue here perhaps, lies only in the verbal articulation of the design, thus emphasizing the impactful nature of language. The analogy to the lava symbolically places the building underground and, thus, buries the figurative face as well.

1.3 Conclusion

At varying degrees and through different means, each of these examples exhibits a familiar sense of Hawaiʻi. In the example of Kamakakūokalani, the design quite successfully incorporates both traditional and contemporary forms to stimulate both a visual and experiential sense of place throughout the design. The design of Kaʻiwakīloumoku also references traditional form in its aesthetic but relies primarily on this to evoke a sense of place. In the final example, the design of Ka Haka ʻUla o Keʻelikōlani attempts to translate traditional ideas into contemporary form but remains conceptually incoherent.

[31] Ibid.

The inconsistent degree to which sense of place is commonly achieved in design solicits a more rigorous process for concept development. A strong central concept facilitates a cohesive design process and lends itself to all phases of design. It is critical to develop this unifying concept at the beginning of the design process to avoid fragmented design solutions informed by arbitrarily selected concepts.

This thesis challenges the accepted standard in Hawai'i for creating a sense of place in design. It suggests a more thorough and place specific method utilizing Hawaiian language for unifying the design process and thus, the building design itself. If one is familiar with the language of a place, his or her sense of that place, its lore and its customs, is deepened. With a more intimate sense of place, the capacity for communicating that sense of place through design is greater. This theory is examined in reverse in the following chapter which looks at the relationship between traditional Māori architecture and language.

CHAPTER 2: A Model for Language in Architecture

Ke whakaritea te whare nui ki te tinana o te tipuna.

The main house is likened to the body of an ancestor.[32]

[32] Patricia Tauroa, *Māori Phrasebook & Dictionary Revised and Updated* (New Zealand: HarperCollins Publishers, 2006), 169.

2.1 Introduction

The Māori people arrived in Aotearoa, New Zealand on seven to fifteen *waka* 'canoes' each carrying a different *iwi* 'tribe of people.' They travelled far across the ocean from places called Hawaikinui, Hawaikiroa, and Hawaikipamamao. It is a common belief that Māori are direct descendants of Native Hawaiians as Hawai'i is thought to represent one or all three of these places.[33]

The significant resemblance between the native languages of both cultures offers further evidence of this lineage. Grammatically, both share similar and sometimes identical syntactic patterns. They also share much of the same vocabulary, often varying only by a letter or two, as the 'l' and 'k' in Hawaiian become 'r' and't' in Māori, respectively. In Voices of Eden, linguistic researcher, Albert Schütz, references Samuel Elbert's study of Hawaiian and other Polynesian languages, comparing Hawaiian and Māori cognates at 71%.[34] Consequently, the following study of the relationship between the Māori language and traditional Māori architecture, very relevantly contributes to understanding how Hawaiian language can relate and thus inform architecture in Hawai'i.

2.2 Housing Language in the *Wharenui* 'Māori Meetinghouse'

> …the parallel with language is one way of attempting to understand the architecture. All languages have a syntax that organizes what is said or done. Māori is organized differently to English, regardless of what words are actually used. Similarly, Māori architecture is structured differently to European architecture, which is based on the grid of squares, rooms, and walls. Māori architecture is organized around sheltering roofs and open spaces.[35]

In addition to syntax, the manifestation of the Māori language in the traditional architecture is inclusive of its creation lore, genealogy traditions and spoken expressions. The architectural translation of these elements is based on the pragmatics of the language and creates a spatial experience for the user and not just a visual one, demonstrated in this examination of the Māori meetinghouse.

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[33] Pania Lee, conversation with author, June 2011.
[34] Samuel H. Elbert, "Internal Relationships of Polynesian Languages and Dialects," *Southwestern Journal of* Anthropology 9 (summer 1953):159, as referenced by Albert J. Schutz, *The Voices of Eden: A History of Hawaiian Language Studies* (Honolulu: University of Hawai'i Press, 1994), 333.
[35] Brown, *Māori Architecture*, 15.

2.2.1 The *Marae*

Within the *iwi* that arrived on the *waka*, there are subtribes called *hapu* each consisting of individual *whānau* 'families.' Each *whānau* belongs to a *marae*. The *marae* is an open air forum; a courtyard functioning as the community center. It consists of different structures serving various purposes; food storehouses, sleeping houses, canoe shelters, and meetinghouses. The *wharenui*, literally 'big house,' is the main building on the *marae* and is the designated meetinghouse.

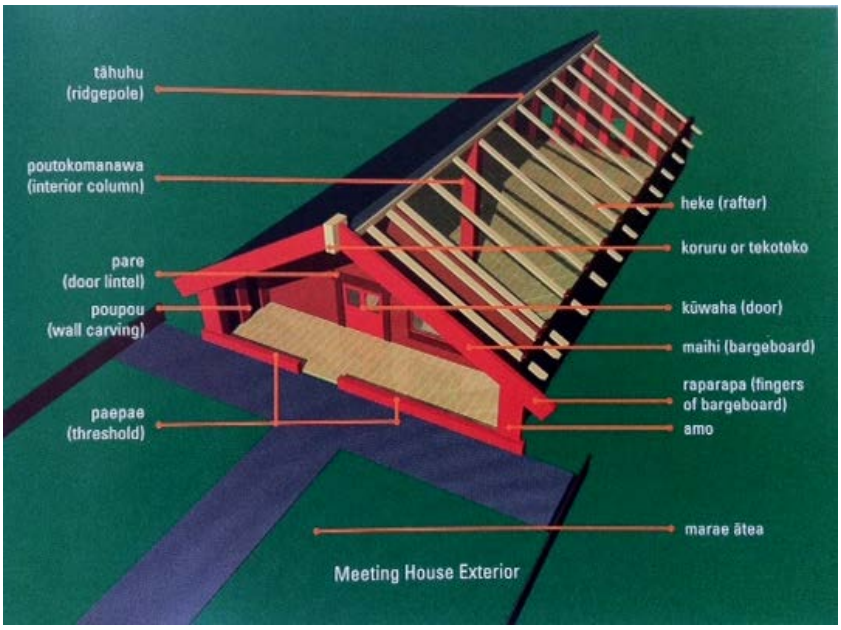

Figure 7: Typical wharenui structural elements[36]

Varying formally according to time, location and respective *iwi*, the *wharenui* is generally a rectangular building with an open floor plan and a gabled roof. The other structures on the *marae* tend to take the same general form. One, sometimes two, major posts in the center of the meetinghouse called the *poutokomanawa*, hold the basic frame of the house. The ridgepole, or *tāhuhu*, rests on the *poutokomanawa*, with rafters, or *heke* extending down from it to the *poupou* 'upright slabs forming framework of walls; interior wall carvings.' Fronting the building is the *maihi* 'bargeboard' that lines up with the roof of the house. At its apex is the *koruru* or *tekoteko*, and at the ends are the *amo*. There is only one door into the *wharenui* which is defined by two vertical *whakawae* and a carved lintel called the *pare*.

[36] Brown, *Māori Architecture*, 53.

According to *Whaea* 'female elder' Te Ripowai Higgins, of Te Tumu Herenga Waka (THW) *marae* at Victoria University in Wellington, besides the main function of the *wharenui* as a meetinghouse, many other activities were and are still carried out there. It also serves as a learning space, facilitating lessons and presentations. Within the house, although an open floor plan, certain spaces were defined by subtle elements of the structure. The space along the center of the *wharenui* in line with the *poutokomanawa* was designated for eating whenever the eating occurred inside the *wharenui*. Also used as a common sleeping place, sleeping practices were dictated by one's relationship to the genealogy of the house. Depending on where one's ancestor is located on the walls of the house, that is where he or she slept. The space in the house from the right of the doorway is designated for the hosts of the house as visitors are generally situated to the left.[37]

2.2.2 Te reo in the Wharenui

The manifestation of *te reo Māori* ' Māori language,' in the traditional architecture as examined in the *wharenui* is unmistakable. There are varying layers of language built into its structure, carved into its walls, and implied in its organization. Rawinia Higgins, *te reo Māori* teacher at Victoria University and daughter of *Whaea* Te Ripowai of THW *marae*, teaches her students about the layers of language and uses *wharenui* as an illustration, demonstrating the relative layers within the house.[38] The terminology of the structural elements and their translations is a surface layer within the *wharenui*, usually revealing a very practical relationship between the language and architecture.

On a deeper level, the Māori creation tradition manifests in the structure of the *wharenui*. In the beginning there was Ranginui, sky father and Papatūānuku, earth mother. Together they had many children, Māori gods, including Tānemahuta, who is the forest, Rongomātāne, peace, Tangaroa, the sea and water, and Tūmatauenga, war. As Papa and Rangi lay together, Tāne, like the trees in the forest, grew between them and thus separated the earth and the sky.[39] The content of this story appears in the *wharenui*, as the traditionally earthen floor symbolizes Papa, the roof structure symbolizes Rangi, and the *poutokomanawa*, or the main structural post between them, is Tāne. In Māori tradition, as seen in Hawaiian tradition, *whakapapa* 'genealogy' is of paramount significance to Māori identity both as a people and as individual *iwi*.

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[37] Te Ripowai Higgins, conversation with author, June 2011.
[38] Rawinia Higgins, conversation with author, June 2011
[39] Pania Lee, conversation with author, June 2011.

Whakapapa reappears in the way the *wharenui* is spoken about. Noel Osbourne, a curator at Te Papa Museum, explained in speaking about the *wharenui*, the importance of recognizing and acknowledging the ancestral being that is manifested within the meetinghouse. When referencing the house in speech one must be conscious that, like people, it too has its own left side and right side. Therefore, "there is no 'as you're seeing it."[40] Understanding the appropriate use of language to describe the house illustrates a specifically Māori perspective. The *wharenui* is considered and thus referred to as a living ancestor of the *whānau* 'family unit' that belongs to the particular *marae* on which it stands. The different formal elements of the *wharenui* serve as a representation of the ancestor's physical body. The *koruru*, sometimes called the *tekoteko*, is a carved image of the ancestor and symbolizes the head of the ancestral body. The *maihi* extending downward from either side of the *koruru* represent the outstretched arms of the ancestor while the *raparapa* at the ends are the fingers. The *tāhuhu* and *heke* respectively symbolize the ancestor's spine and rib cage. Finally, the *poutokomanawa*, a most prominent feature inside of the building, often carved in the image of a family god, is said to represent the heart.[41]

At another level of representation, family ancestors are depicted on the *poupou* or wall carvings inside the *wharenui*. The principal analogy of these building elements as a body is a significant personification of the *wharenui* illustrating a very personal and spiritual relationship that exists between the Māori and their dwelling space. Consistent with this personification is the Māori term for the only door in the *wharenui*, called the *kūwaha*, as *waha* is the Māori (and Hawaiian) word for mouth.[42]

Grammatical elements of the language appear in the *wharenui* as demonstrated in a common Māori greeting, *tēnā koe*. Generally translating to 'hello,' this greeting, most basically, is a simple acknowledgement of one's presence. Individually, however, the two words *tena* and *koe* suggest something more specific. *Koe* translates to 'you' and one translation of *tēnā* is 'that.' The spatial implication in the word *tēnā* 'that' compared to the closer proximity of the word *tenei* 'this,' suggests a distinct separation or boundary between the speaker and the addressee as in the expression, 'you there.'

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[40] Noel Osbourne, conversation with author, June 2011.
[41] Brown, *Māori Architecture*, 53.
[42] Ibid.

This implication of threshold is reinforced by the general message that is delivered in a *powhiri*, the traditional Māori reception protocol. When a *manuhiri* 'foreigner' comes to a *marae*, the *tāngata whenua* 'natives of that place' perform a ceremony. Both parties engage in an exchange of introductions, learning of each other's *whakapapa*. The visitors are formally asked whether they have come for war or for peace. In short the *powhiri* is a ceremonial inquisition. In other words asking, 'Who are you?' and 'Why are you here?' The aforementioned 'threshold' is more overtly expressed in this uniquely Māori oral practice.

Formally, this concept of threshold manifests in the spatial arrangement of the *wharenui* entrance. There is a series of physical thresholds one must pass through before actually entering the building. The first is the *marae ātea*, the space outside and in front of the *wharenui* which facilitates the *powhiri* protocol. Second, is the *paepae*, a physical threshold that defines the covered lanai-like space in front of the door. The last and perhaps most important one is the *pare*, the lintel above the doorway as it explicitly distinguishes the world outside the *wharenui* from the world inside.

> It marks a *tapu* [sacred] threshold into what is often called *te poho*, or the body of the ancestor who is *te whare tipuna*, the ancestor house. For the tribe and their visitors, to enter the house is to go into the body and, symbolically, to change one's state.[43]

Once peace is the established reason for the visitors' arrival, the *tapu* 'taboo' is lifted and the visitors are invited to share a *kai* 'feast' with the *tāngata whenua*. They are cared for as an extension of the *whānau* and the atmosphere transforms from one defined by inquisition and defense to one defined by *manaakitanga* 'Māori hospitality.'

2.3 Conclusion

This investigation asserts that elements of language are implicit in the traditional Māori meetinghouse, effectively resulting in a true and cohesive sense of place in architecture. In this study of the relationship between Māori language and Māori architecture a three-part methodology was generated that is directly applicable to the exploration of this relationship in a Hawaiian context.

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[43] David Simmons, *The Carved Pare: A Māori Mirror of the Universe* (Wellington: Huia Publishers, 2001), 9.

In general, the methodology identifies the following three components:

1) various elements of language,
2) their meanings and implications, and
3) the architectural application of these language elements.

In the context of the wharenui:

1) the Māori greeting is the language element,
2) the implication of the Māori greeting as a theoretical threshold,
3) the physical thresholds that exist in front of the *wharenui*, the *marae ātea*, *paepae*, and *pare*, are the architectural applications.

Table 1 organizes the example of the relationship between *te reo Māori* and the *wharenui*.

Table 1: Three Part Methodology - Wharenui

(1) Language Element	(2) Meaning/Implication	(3) Architectural Application
Māori creation story	Whakapapa - genealogy Ranginui, sky father, and Papatūānuku, earth mother separated by Tānemahuta, forest.	Ranginui - roof structure Papatūānuku - floor Tānemahuta - main post
Māori greeting: Tēnā koe powhiri	Threshold: 'you *there*' 'Who are you?' 'Why are you here'	Physical boundary, thresholds: paepae, marae ātea, pare
Ancestral body metaphor	Personification, socialization of wharenui	(Refer to Figure 7) Koruru - head maihi - arms raparapa - fingers tāhuhu - spine heke - ribs poutokomanawa – heart (kū)waha - mouth

As Māori are the cultural descendants of Hawaiians, this example of language in architecture substantiates implementing this three part methodology in studying the relationship between Hawaiian language and Hawaiian architecture. The implementation of this methodology is explained more explicitly in the following chapters.

CHAPTER 3: Hōʻike ka ʻŌlelo i ke Kuanaʻike, Pt. 1

[The language reveals the worldview]

I ka ʻōlelo no ke ola, i ka ʻōlelo no ka make.

Life is in speech, death is in speech.

Words can heal; words can destroy.

-ʻŌlelo Noʻeau #1191[44]

[44] Pukui, *ʻŌlelo Noʻeau*, 129.

3.1 Introduction

The Hawaiian language is an invaluable source for understanding Native Hawaiian perspective. As expressed in the opening *ʻōlelo noʻeau*, Hawaiians believed there was divine power in language. They believed in the potential harm or good, spoken words could impart, both death and life included. This power, or *mana*, in words speaks to the sensitivity and awareness that characterized the native speakers of the Hawaiian language. Words were carefully chosen to form phrases which then, were purposefully arranged to form prayers and chants, each practiced flawlessly so as to appease their gods—the entity this *mana* came from.

In an article examining traditional Hawaiian methods of "mapping" the *ʻāina*, Assistant Professor Hawaiian language, Kapā Oliveira writes of a common expression, "*He mana hoʻi ko ka ʻōlelo, a paʻa ihola ke kuanaʻike Hawaiʻi i ka ʻōlelo kanaka*."[45] This translates roughly to: Language has power and Hawaiian worldview is fixed in the language of the Hawaiian people.[46] This chapter identifies different practices within the Hawaiian language each communicating a unique worldview which can be assessed for its architectural value in the three-part methodology introduced in Chapter 2.

3.2 *Inoa*

The practice of naming was a prevalent Hawaiian tradition which designated significance to that which was named. The meanings and origins of the given names indicated the specific perspective Hawaiians had towards their environment, their gods, themselves and each other.

3.2.1 People

> In the early days of Hawaiʻi, personal possessions were few, but highly valued. *Poi* pounders, woven mats, a man's *malo* or loin cloth…all these were prized. But even more precious was each man's most personal possession, his name.[47]

In the quote above, Pukui comments on the great importance a name held. When a child was born, certain things, people, or events may have inspired a name and there were different means by which

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[45] Katrina-Ann R. Kapāʻanaokalākeola Nākoa Oliveira, "Hōʻike Honua: He Mana ko ka ʻŌlelo," *Hūlili: Multidisciplinary Research on Hawaiian Well-Being, Vol. 7* (2011), 52.
[46] Author's translation.
[47] Mary Kawena Pukui, E.W. Haertig, M.D., and Catherine A. Lee. *Nānā i ke Kumu (Look to the Source) Vol. I*, (Honolulu: Hui Hanai, 1972) 94.

he or she was named, demonstrating the reverence Hawaiians had for certain concepts. Children named after their ancestors were given *inoa kupuna* 'ancestor names.' *Inoa pō* 'night names' were considered to be given by the gods by way of dreams. When a parent or relative of the child received a name in a dream it was believed that, unless the child was named accordingly the child would fall ill or die. *Inoa kūamuamu* 'insult names' were given either to commemorate an offense by a kinsman, or to ward off evil spirits who might cause harm to the child.[48]

The deliberate nature of naming gave life to that which was named. It was a practice that Hawaiians extended to anything considered living in Hawaiian worldview. This is in contrast to the popular American practice of naming children based on the sound with little or no meaning attached to it. For example, the name Abcde, pronounced 'ab-si-dee,' derives from the first five letters of the English alphabet and bears no further meaning.[49]

3.2.2 Natural Elements

For various and specific reasons, elements in nature were also given names including different types of rain and wind, trees and rocks, the stars, and the phases of the moon. Paul Nahoa Lucas, a former attorney for the Hawai'i Civil Rights Commission states in an article on the Hawaiian language, "the rich and extensive Hawaiian vocabulary reflected Hawaiians' symbiotic relationship with their environment."[50] Previous studies have documented more than 50 names for specific rains, and more than 80 different words for types of rain and mists. Some sources have listed more than 100 names for different winds; others have listed more than 200.[51] Kanilehua is the name of a specific kind of rain that is found in Hilo, on Hawai'i Island. It acknowledges the rustling sound, or *kani*, of the *lehua* flowers when it rains.[52] Hawaiians were intimately connected to their surroundings and the names and words they used to specifically describe their environment represent how Hawaiians organized and viewed the world.

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[48] Handy, Craighill and Pukui. *The Polynesian Family System in Ka-'u, Hawai'i*, 98-100.
[49] Author unknown. "Abcde." BabyNames.com, http://www.babynames.com/name/Abcde.
[50] Paul Nahoa Lucas, "*E Ola Mau Kākou I Ka 'Ōlelo Makuahine*: Hawaiian Language Policy and the Courts." *The Hawaiian Journal of History,* vol. 34 (2000), 1.
[51] Schutz, *The Voices of Eden*, 206-207.
[52] Pukui and Elbert, *Hawaiian Dictionary*, "Kanilehua"

3.2.3 Places

In her article, Oliveira writes explicitly about Hawaiian place names, or *inoa ʻāina*. According to her, places were named for their physical appearance, things found in abundance there, or legendary events which occurred there.[53] The meanings behind these names, then, communicate specific attributes of the area of land they belong to. For example, Hilo, is divided into three sections. Hilo One 'Hilo's sands' is so named for its proximity to the ocean. Hilo Hanakahi, was named for a famous chief, Hanakahi. Hilo Palikū 'Hilo of the upright cliff' is the easternmost section where the coast is defined by cliffs.[54] In this case, physical features of Hilo One and Hilo Palikū are described in their names and Hilo Hanakahi recalls the history of the chief Hanakahi in Hilo. According to Oliveira, when the ancient place names are uttered, so too are the meanings, the language, and the perspective of the natives of those places who have passed on.[55]

In David Malo's *Ka Moʻolelo Hawaiʻi*, as translated by Malcolm Chun, Malo describes the names by which Hawaiians identified the cardinal directions. As indicated in Table 2, all of the terms are associated with the path of the sun. Hawaiians were acutely aware of all the natural elements of the environment as they survived and thrived entirely from the land and sea. Their livelihood depended on an intimate understanding of the environment and its behavior.

Table 2: Names of Directions[56]

ʻŌlelo Hawaiʻi	Translation
Kūkulu hikina	east; where the sun rose (*hiki* - to appear)
Kūkulu komohana	west; where the sun set (*komo* - to enter or sink)
Kūkulu hema	south; when facing sunset, person's left (*hema*) was towards *kūkulu hema*
Kūkulu ʻākau	north; when facing sunset, person's right (*ʻākau*) was towards *kūkulu ʻākau*

[53] Oliveira, *Hōʻike Honua*, 56.
[54] Elbert, Pukui, and Moʻokini, *Place Names of Hawaiʻi*, Hilo
[55] Olivera, Hōʻike Honua, 56.
[56] Davida Malo, trans. by Malcolm N. Chun. *Ka Moʻolelo Hawaii*, (Honolulu: First Peoples Productions, 2006), 9-11. See also Emerson.

3.3 *Moʻo + ʻŌlelo*

The Hawaiian language is one characterized by its storytelling traditions. The term *moʻolelo*, from *moʻo ʻōlelo* 'succession of talk' is used here to generally classify the following oral traditions: *mele* 'songs,' *oli* 'chants,' and *pule* 'prayers.'[57] On its own, however, the term *moʻolelo* represents another specific tradition of storytelling. Traditions of *moʻolelo* communicate a narrative which provides extensive insight into native perspective.

3.3.1 *Moʻolelo* and *Kaʻao*

Defined by Elbert and Pukui as "Story, tale, myth, history, tradition, literature, legend, journal, log, yarn, fable, essay, chronicle, record, article;" *moʻolelo* are revered as historical accounts of Hawaiʻi which involve both fact and fancy.[58] The stories are innumerous and through the content of each, significant concepts appear. They tell about gods and goddesses, their existence in the different facets of nature and their interactions with man, exhibiting the traditional relationships that existed in Hawaiʻi. *Moʻolelo* are often set in the context of specific places in Hawaiʻi which hold valuable information about the histories of each place.

Kaʻao, defined as "Legend, tale, novel, romance, usually fanciful; fiction;" are types of *moʻolelo* which also offer great perspective in the form of mythical tales.[59] In Pukui's *He Mau Kaʻao Hawaiʻi: a collection of Hawaiian folktales*, the stories often involve a reference to some element in nature indicating the prevalent interaction Hawaiians had with the natural environment. *Kaʻao* tend to communicate an element of a moral or lesson, as seen in "Ka Uʻi Palaualelo," a short example of a from Pukui's book. It tells of a lazy beauty who only wants to spend her time up in a tree in the arms of her lover. She repeatedly calls to her sister who is down below cooking sweet potato, to remind her to turn her sweet potato, too. The sister only replies with an unsympathetic "sure." Finally, after a swim in the ocean, the lazy beauty returns with her lover to find her sweet potato overcooked and burnt as her lover takes off with the other sister.[60] In this example, the lesson is clear: a major

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[57] Pukui and Elbert, *Hawaiian Dictionary*, "moʻolelo"
[58] Ibid.
[59] Pukui and Elbert, *Hawaiian Dictionary*, "kaʻao"
[60] Mary Kawena Pukui, Laura S. Green. *Folktales of Hawaiʻi: He Mau Kaʻao Hawaiʻi.* (Honolulu: Bishop Museum Press, 1995).

consequence of laziness is no food. The implication here is the importance of *ʻāina* as that which feeds. One cannot eat unless he puts in the work to cultivate his food, from seed to feed.

3.3.2 *Mele*, *Oli*, and *Pule*

Typically found within *moʻolelo* is evidence of other oral traditions including *mele*, *oli*, and *pule*. The general term *mele* addresses all three of these traditions, each with only slight distinctions from the others. Elbert and Pukui define mele as a "song, anthem, or chant of any kind; poem, poetry; to sing, chant…"[61] *Mele* served many purposes in communicating information. Hawaiian historian, Samuel Kamakau writes generally about the value of *mele* and their varying purposes:

> *He nui ke ano o na mele, a he nui no-hoi ka waiwai i loaa maloko o na mele a ka poe kahiko i haku ai. Ua hana ia ko ka lani, ko ka lewa, ko ka moana, ko ka honua, ko ka la, ka mahina, na hoku a me na mea a pau.*[62]
>
> There are many kinds of *mele*, and the value obtained from within *mele* that the ancient people composed were just as abundant. There were *mele* for the heavens, the sky, the ocean, the earth, the sun, moon, the stars and everything else.[63]

Kumu hula 'hula teacher' and recording artist, Keawe Lopes gives his interpretation of *mele* in his dissertation on the perpetuation of *ʻōlelo* through the preservation of *mele*.

> Generally termed "*mele*," these poetic expressions served as an avenue for our *kūpuna* to express themselves spiritually, physically, and emotionally. *Mele* preserved the thoughts, feelings and expressions of the *haku mele* ['composer'] and the performance thereof then communicated these intentions to the appropriate audience.[64]

Oli, defined as a "chant that was not danced to, especially with prolonged phrases chanted in one breath, often with a trill at the end of each phrase," are a type of *mele*.[65] Some *oli* that were originally composed to be chanted have later been rearranged and performed as songs. In general, though, *oli* are distinguished by the feeling of tradition inherent in the performances of them.

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[61] Pukui and Elbert, *Hawaiian Dictionary*, "mele"
[62] Ka Nupepa Kuokoa, Dekemapa 21, 1867 as referenced in Lopes Jr., "Ka Waihona a ke Aloha."
[63] Samuel Kamakau as referenced in Lopes Jr., "Ka Waihona a ke Aloha."
[64] Robert Keawe Lopes Jr., "Ka Waihona A Ke Aloha: Ka Papahana Hoʻoheno Mele, an Interactive Resource Center for the Promotion, Preservation and Perpetuation of Mele and Mele Practitioners." (PhD diss., University of Hawaiʻi at Mānoa, 2010), 42. [author's brackets]
[65] Pukui and Elbert, *Hawaiian Dictionary*, "mele"

In her book, *Ka Honua Ola: ʻEliʻeli Kau Mai, kumu hula* and Doctor of Philosophy, Pualani Kanahele examines several *oli* known to her through ancient memory. The first *oli* she examines, "Haumea lāua ʻo Moemoeaʻaliʻi," is a *moʻokūʻauhau* 'genealogy' of the earth family. It is the lineage of Haumea, the entity from which all things were born.[66] The following are lines excerpted from the chant:

1. *Kamohoaliʻi (k), hānau ma ka manawa mai*
2. *Kānehekili (k), hānau ma ka waha*
8. *Nāmakaokahaʻi (w), hānau ma ka umauma*
9. *Pelehonumea (w), hānau ma kahi mau e hānau ʻia ai ke kanaka*
14. *Hiʻiakaikapoliopele (w), hānau ma nā poho lima, ma ke ʻano me he hua moa ala*

1. Kamohoaliʻi (m), born from the fontanel
2. Kānehekili (m), born from the mouth
8. Nāmakaokahaʻi (f), born from the chest
9. Pelehonuamea (f), born from the usual place of people
14. Hiʻiakaikapoliopele (f), born in the palms in the shape of an egg[67]

This chant introduces Pelehonuamea, commonly known as the goddess of fire, and her place of birth as well as her siblings and each of their birth places. As depicted in the chant, origin is of paramount significance in Hawaiian perspective as *moʻokūʻauhau* appear in many oral traditions.

As an extension of *oli*, *pule* were often chanted. This form of *oli* was used specifically to communicate with the spiritual realm. They were performed for all kinds of purposes, including prayers of offering, prayers concerning death and misfortune, life and aloha, children and the home, farming and fishing, and prayers seeking knowledge.[68] The following is an example of a farmer's request for rain, a prayer to the god, Lono:

O wahi mai, e Lono	Break through, O Lono
O wahi o luna	Break through above
O wahi o lalo	Break through below
O wahi ka uka	On the uplands
O wahi ke kai	On the sea shores.[69]

[66] Pualani Kanakaʻole Kanahele, PhD, *Ka Honu Ola: ʻEliʻeli Kau Mai*. (Honolulu: Kamehameha Publishing, 2011), 5.
[67] Ibid., 2-3.
[68] June Gutmanis, *Na Pule Kahiko: Ancient Hawaiian Prayers*. (Honolulu: Editions Limited, 1983), vii.
[69] Ibid., 67.

As an exchange between man and deity, *pule* represent a very powerful form of oral tradition. It is a sacred practice to converse with one's gods and the things that were prayed for and about hold special significance.

3.4 *ʻŌlelo Noʻeau*

For reasons of playful teasing or complimenting, teaching or simply observation, Hawaiians created and used poetical sayings to express their thoughts, many of which derived from particular *moʻolelo* and the characters within them. These sayings or proverbs are referred to as *ʻōlelo noʻeau*. Referencing anything from gods to canoes, *ʻōlelo noʻeau* provide a generous window for understanding *maoli* 'indigenous' thinking. "To know the sayings is to know Hawaiʻi."[70]

> Since the sayings carry the immediacy of the spoken word, considered to be the highest form of cultural expression in old Hawaiʻi, they bring us closer to the everyday thoughts and lives of the Hawaiians who created them. Taken together, the sayings offer a basis for an understanding of the essence and origins of traditional Hawaiian values.[71]

Pukui dedicated much of her scholarly life to the collection and translation of *ʻōlelo noʻeau*. The compilation of her findings, appropriately titled '*Ōlelo Noʻeau Hawaiian Proverbs and Poetical Sayings*, reveals the many concepts that were revered by Hawaiians. The index alone demonstrates the degree of importance an individual idea holds by the frequency with which the idea is referenced. For example, over 60 entries are classified under *gods.*[72] Other important ideas with numerous entries include *aliʻi, children* and *family, man* and *woman, love/lovemaking, labor/work, life* and *death, signs, speech, eating, birds, fish/fishing, canoes, wind, rain, water, sea,* and *land,* each articulating a specifically Hawaiian worldview.

> #531 He aliʻi ka ʻāina; he kauwā ke kanaka.
> *The land is a chief; man is its servant.*[73]

The example above communicates how Hawaiians viewed themselves relative to the land. Man is a steward of the land which feeds him. According to Hiapo Perreira, Hawaiian language and literature

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[70] Pukui, *ʻŌlelo Noʻeau*, xi.
[71] Ibid., vii.
[72] Ibid.,
[73] Ibid., 62.

professor and scholar, *ʻōlelo noʻeau* function to propagate traditional wisdom as passed on from *kūpuna* which continues to be relevant through the evolution of time and circumstance.[74]

3.5 *Welina*

Welina is a traditional greeting of affection, as described by Elbert and Pukui in the *Hawaiian Dictionary*.[75] Its meaning and intention are similar to that of the term, *aloha* and it is delivered to an audience. The main intention of the *welina* is to facilitate a connection between the speaker and the audience.

The content of the greeting is often tailored to the specific audience. Using certain characteristics of a particular place, such as the famous rain or wind that occurs there or respected chiefs of that area, the speaker poetically acknowledges where the audience is from.[76] It expresses aloha for and gives reverence to the origin, or *moʻokūʻauhau* of the audience.

Perreira explain *welina* in his dissertation on the revival of Hawaiian oratory and introduces it as the first element in formal speech making. [77] In addressing the audience, the context of the gathering can also be incorporated into the greeting. For example, if it is a presentation about taro, an acknowledgement of Hāloa, the ancestor from whom Hawaiians descend, is appropriate as taro is the embodiment of this being.

The following is an example of a typical *welina*. It is from the introduction in a book and the intended audience is the readers of that book who reside among the islands of Hawaiʻi.

> *He welina aloha i nā kupa o ka ʻāina e noho ana mai Hawaiʻi Moku O Keawe, kahi e ʻike mua ʻia ai ka wehena kaiao, a i Niʻihau O Kahelelani, kahi e ʻaui ai ka lā i lalo o ka mole o Lehua*.[78]
>
> Greetings to the natives of the land residing from Hawaiʻi Island of Keawe, the place where the break of dawn is first seen, to Niʻihau of Kahelelani, the place where the sun descends below the root of Lehua.[79]

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[74] Hiapokeikikāne Kichie Perreira, "He Haʻiʻōlelo Kuʻuna: Nā Hiʻohiʻona me nā Kiʻina Hoʻāla Hou i ke Kākāʻōlelo." (PhD diss., University of Hawaiʻi at Hilo, 2011), 219.
[75] Pukui and Elbert, *Hawaiian Dictionary*, "welina"
[76] Perreira, "He Haʻiōlelo Kuʻuna," 364.
[77] Ibid.
[78] Ka Haka ʻUla o Keʻelikōlani, *Lehua ʻĀhihi*, (Hilo: Hale Kuamoʻo, 1997), i.
[79] Author's translation

The example above acknowledges Keawe, an ancient chief associated with Hawai‘i island and Kahelelani, an ancient chief associated with Ni‘ihau. It is important to note that the example also depicts the islands of origin uttered from easternmost to westernmost; from where the sun rises to where the sun sets behind Lehua, a small island just west of Ni‘ihau. Oliveira also writes about *welina* in her article, Hō‘ike Honua, and explains that *ka‘ina*, or sequence, is also an important concept in Hawaiian perspective.[80] The significance of the sun path is again seen here in the tradition of *welina*.

3.6 Conclusion

The oral traditions examined in this chapter, indicate how the Hawaiian viewed himself relative to his surroundings and articulate an explicitly Hawaiian worldview. Important relationships manifest in these traditions including that which existed between *kanaka* ‘man, person’ and *kanaka*, *kanaka* and *akua* ‘god’, and *kanaka* and *‘āina*.

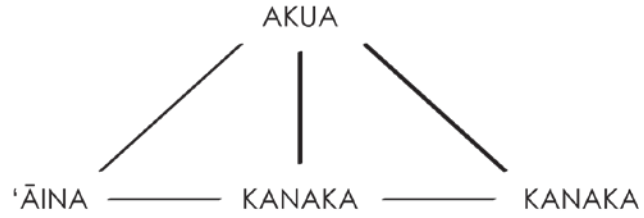

Figure 8: Relationships that manifest in Hawaiian language traditions.

In the context of architecture, these relationships are important to consider. Table 3 lists the concepts significant in Hawaiian perspective demonstrated by the brief examination of language in this chapter. Implementing the three-part methodology developed in the previous chapter, the table organizes how these concepts can be translated into architecture. This methodology will hereafter be referred to as Papa Ho‘ohuli ‘Ōlelo, or Language Transforming Chart as it is a chart which organizes the transformation of a language element into form.

[80] Oliveira, *Hō‘ike Honua*, 61.

Table 3: Papa Hoʻohuli ʻŌlelo: ʻŌlelo Hawaiʻi

ʻŌlelo Element	Interpretation	Design Translation
Names of wind and rain	Significance of natural elements/resources	Respond to natural elements of particular place through sustainable design - passive cooling, rain water collection
Oli – Haumea lāua ʻo Moemoeaʻaliʻi	*Moʻokūʻauhau*	Circulation and views that address genealogy of a place
Kūkulu	Significance of sun path and natural elements	Orientation of design on *kūkulu* axes acknowledging sun path
Welina	Social protocol, reverence of *moʻokūʻauhau*, *kaʻina*	Circulation and views that address genealogy of a place in a processional way

In the context of architecture the wind and rain names can be applied to design through passive sustainable gestures including methods for cooling and rain water collection.

Most often an introductory element in story or speech, the idea of *moʻokūʻauhau* should be clearly apparent in a design. For example, moments of reflection on a pedestrian path that are oriented towards physical features of the site that represent the significant history of that particular place can address *moʻokūʻauhau*.

Orienting a design on the axes of the *kūkulu* directions and acknowledging the sun path through roof form or fenestration are a practical way of responding to this element of language. This is seen in the aforementioned example of Kaʻiwakīloumoku, the Hawaiian Cultural Center at Kamehameha Schools, Kapālama.

Welina can be translated in a thoughtfully designed procession type approach to a building, acknowledging the physical and historical context of the particular place the building is in.

CHAPTER 4: Hōʻike ka ʻŌlelo i ke Kuanaʻike, Pt. 2

[The language reveals the worldview]

Ua lehulehu a manomano ka ʻikena a ka Hawaiʻi.

Great and numerous is the knowledge of the Hawaiians.

-ʻŌlelo Noʻeau #2814[81]

[81] Pukui, *ʻŌlelo Noʻeau*, 309.

4.1 Introduction

Consistent with the multiple layers of *te reo Māori* expressed in the Māori meetinghouse, the Hawaiian language characteristically possesses its own distinct set of layers. Each of these layers contains an abundance of information specific to *kuana'ike Hawai'i* 'Hawaiian worldview'. In the preceding chapter, a brief overview of some of the many oral traditions in the Hawaiian language introduces a range of concepts significant in Hawaiian worldview. This chapter develops a system to organize these concepts by identifying layers that exist in the Hawaiian language and the information implicit in each of them.

4.1.1 Layers of Information

Each of the three layers depicted in Figure 9, while distinct by definition, are not exclusive of each other as indicated by the continuous line, simultaneously dividing and connecting each layer. The layers are arranged according to accessibility as understood from the perspective of a non-native speaker. *Kuana'ike Hawai'i* is at the *piko* or center of this illustration as it is only truly accessible through grasping the outer three layers and thus, is the ultimate objective.

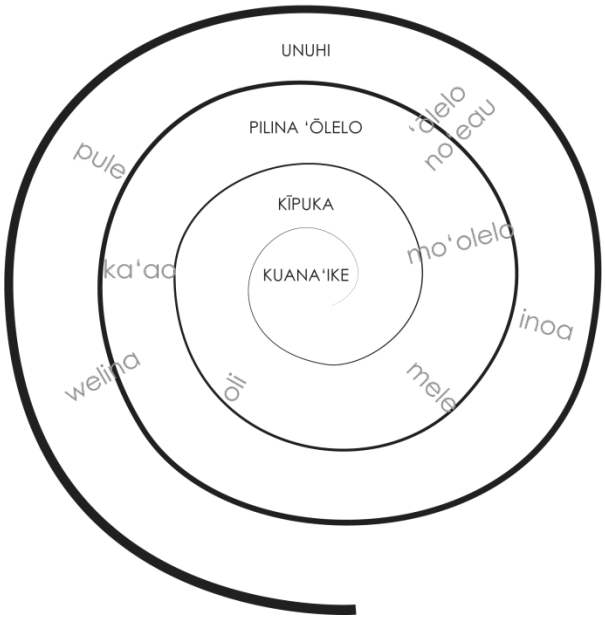

Figure 9: *Piko* diagram illustrating layers of information in *'ōlelo Hawai'i*[82]

[82] Author's diagram.

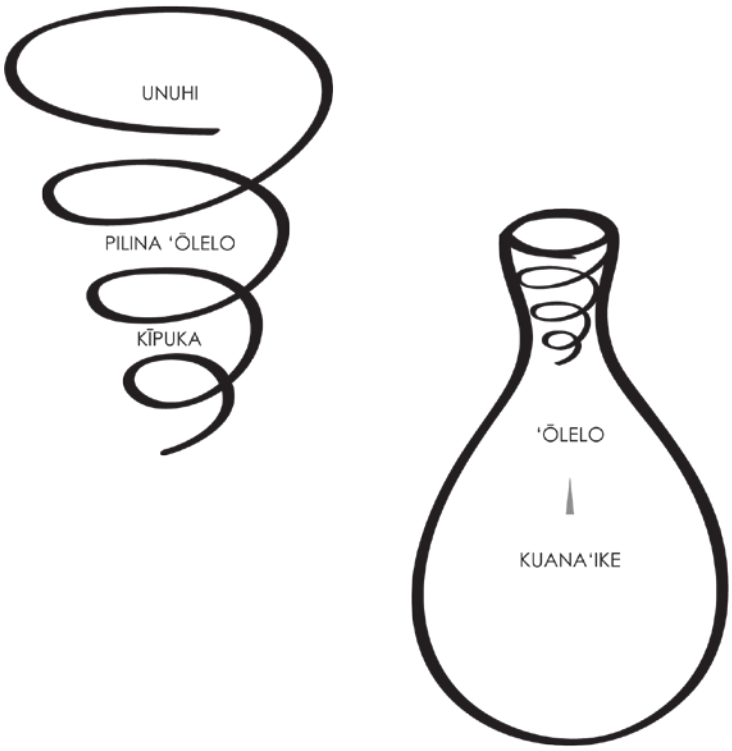

Figure 10: Layers of language in *ipu kuanaʻike*

With regard to the *ipu kuanʻike* introduced earlier in this thesis, the system of layers form the opening of the gourd as depicted above in Figure 10. The closer to the center one can access, the deeper into the *ipu* his understanding becomes.

4.2 *Unuhi*

The outermost layer, *unuhi* 'translation' discloses the translatable information or the content of what is expressed in Hawaiian.[83] This is the most accessible layer of information as one need not necessarily understand the Hawaiian language to grasp the concepts this layer yields. The main ideas that appear in Hawaiian are maintained when translated into English. Most of the concepts extracted from the oral traditions in Chapter 3 such as *moʻokūʻauhau* and *aloha ʻāina* 'love of the land' came from the *unuhi* layer.

[83] Translation from Mary Kawena Pukui and Samuel H. Elbert, *Hawaiian Dictionary: Hawaiian-English, English-Hawaiian*, (University of Hawaiʻi Press, Honolulu, 1986), 'unuhi.'

4.3 Pilina ʻŌlelo

The second layer, *pilina ʻōlelo* ʻrelated through languageʼ addresses the information that is revealed in the systematic intricacies of the Hawaiian language.[84] The concepts in this layer are not as easily translatable to English and in some cases have no English translation. *Pilina ʻōlelo* focuses on the nuances that organize how things are expressed in Hawaiian which, not only distinguish it from other languages but, more importantly, are indicators of Hawaiian worldview. This includes the arrangement of what is said and, more technically, the grammar that defines the structure of the language.

> Every language also indexes a unique worldview into its grammar which serves as an unconscious cultural lens that must be maintained at all times when speaking the language.[85]

More abstract ideas are found in this layer such as social and spatial relationships or how Hawaiians understood/understand themselves individually and as a group, in both space and in time. An example from Chapter 3 is the *kaʻina* ʻsequenceʼ with which the islands are addressed in *welina*, i.e., the path of the sun. It is the arrangement of the expression, dictated by *kuanaʻike*, not the translation that indicates this uniquely Hawaiian perspective.

The following is a brief discussion of language elements at the *pilina ʻōlelo* level and the concepts unique to Hawaiian thinking that these elements suggest.

Hawaiian pronouns are more specific than the English pronouns. In Hawaiian the terms used to indicate the pronominal reference a distinctly Hawaiian perspective of social space and one's location relative to that of others as shown in Table 4 and depicted in Figure 11.

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[84] C.M. Baker, conversation with author, March 14, 2013.
[85] ʻAha Pūnana Leo, *Kumu Honua Mauli Ola: He Kālaimanaʻo Hoʻonaʻauao ʻŌiwi Hawaiʻi*, (Hilo: Hale Kuamoʻo), 45.

Table 4: Hawaiian Pronouns[86]

First person	Second person	Third person
au 'me'	*'oe* 'you'	*ia* [he, she, it]
kāua 'both of us'		
māua 'we 2, exclusive of addressee'	*'olua* 'you 2, exclusive of speaker'	*lāua* 'they 2'
kākou 'all of us'		
mākou 'we 3+, exclusive of addressee'	*'oukou* 'you 3+, exclusive of speaker'	*lākou* 'they 3+'
kēia 'this'	*kēnā* 'that, near addressee'	*kēlā* [that, far]

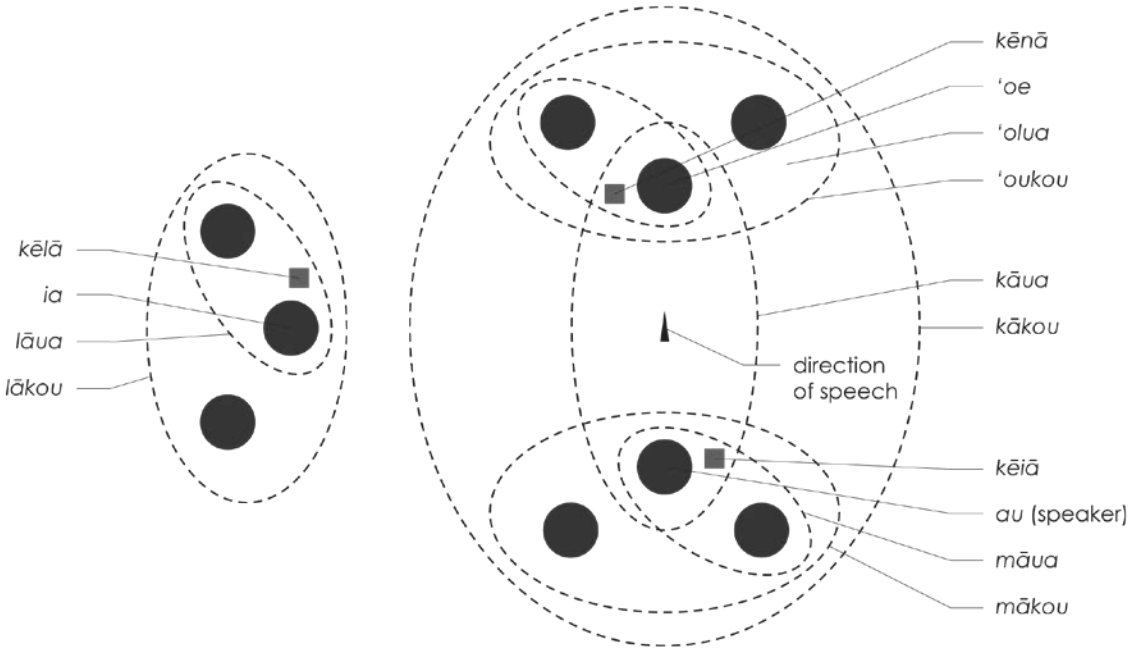

Figure 11: Diagram of spatial relationships derived from Hawaiian pronouns[87]

[86] Samuel H. Elbert, M. K. Pukui, *Hawaiian Grammar*, (Honolulu: University Press, 1979), 107.
[87] Author's diagram.

Hunekuhi 'directional cues,' are demonstrative elements which do not have exact English translations, but serve to indicate the relative location of the speaker in both time and space. These are *mai*, *aku*, *iho*, and *a'e*.[88] In speech, these cues can specify the direction of an action. For example, *e hele mai* is a command to come (toward the speaker), whereas *e hele aku* is a command to go (away from the speaker). The action word, *hele* 'go, come,' stays the same in both instances while the terms, *mai* and *aku*, indicate the direction. When used in stories, these cues can also inform the reader of the relative location of the characters in the story as well as the relative time events are occurring. The directional implications are depicted in Figure 12 and explained in Table 5.

Figure 12: How a kanaka locates his self in space[89]

Table 5: Directional Cues[90]

ʻŌlelo Hawaiʻi	Meaning
mai	Near or toward the speaker; to me, toward the speaker
iho	Near or toward the speaker; downward, self, reflective, near future
a'e	Visible, sometimes near addressee; up, nearby, adjacent, adjoining, next in space or time; lateral movement
aku	Far or away from the speaker; away, future

[88] Elbert and Pukui, *Hawaiian Grammar*, 91.
[89] Author's diagram.
[90] Ibid.

The implications of time are explained in Table 6 and detailed in Figure 13.

Table 6: Time Cues[91]

ʻŌlelo Hawaiʻi	Meaning
aku nei	Distant past
aʻe nei, iho nei	Recent past
aʻe	Adjoining the present
iho	Near future or past
aku	Distant future or past

Figure 13: How a kanaka locates his self in time using directional cucs[92]

The locative nouns e.g., *mua* 'first, before, or front' and *hope* 'last, after, or back,' are indicators of both time and space. This is a distinct indication of the Hawaiian orientation towards the past and the future. In Hawaiian, the past is referred to as *ka wā ma mua* 'the time before' and the future as *ka wā ma hope* 'the time after.' This is in contrast to English expressions such as, "the past is behind us" and "the future is before us." Hawaiians revere the past by "facing" it and thus using it as a source to learn from. The future has not happened yet and therefore, remains a secondary consideration.

The immediate understanding of one's location (in space) was also dependent on the land. Another pair of locative nouns, *uka* and *kai*, typically preceded by either *i* or *ma*, reference inland or seaward, respectively. When on an island surrounded by water these terms eliminate the confusion that comes with using right or left, which are locative nouns in English that vary in meaning depending on the direction one is facing. These locative nouns are listed in Table 7.

[91] Elbert and Pukui, *Hawaiian Grammar*, 92.
[92] Author's diagram.

Table 7: Locative Nouns[93]

ʻŌlelo Hawaiʻi	Meaning
mua	before, first
hope	after, last, because
muli	after, last, because
kai	seaward
uka	inland

4.4 *Kīpuka*

The third layer, entitled *kīpuka*, is a play on the word *puka* meaning 'to say, come through.'[94] *Kīpuka* addresses how things are said or expressed in Hawaiian as informed by, and therefore revealing, Hawaiian perspective. This then leads to another meaning in *kīpuka* 'the opening in cloud formations' symbolizing the portal to understanding Hawaiian perspective.[95]

4.4.1 *Kaona*

This most difficult to access layer identifies the style, performance, or delivery of different ideas in the Hawaiian language, including what is deliberately not said. Mindful of the powerful impact of the spoken word, Hawaiians intricately crafted how they expressed their thoughts; a reflection of the values that informed their thinking. *Kaona* is a principle characteristic of the Hawaiian language that distinctly exhibits this idea.

Similar to and inclusive of the use of metaphor, *kaona* is the poetic use of veiled language that describes one or more ideas under the guise of another, more universally understood idea. Most commonly described as hidden or double meaning, *kaona* appears in all layers but its accessibility most appropriately locates it in the third layer. This significant element of Hawaiian language while often difficult and sometimes impossible to interpret is invaluable for the insight it offers concerning Hawaiian thought.

While not every single word uttered had a meaning beyond what is most obvious, it is typical to find at least one other interpretation in an expression. Often implemented in general conversation, *kaona* appeared in most Hawaiian oral traditions. Many *ʻōlelo noʻeau* used one thing to represent another.

[93] Elbert and Pukui, *Hawaiian Grammar*, 110-122.
[94] Pukui and Elbert, *Hawaiian Dictionary*, puka.
[95] Pukui and Elbert, *Hawaiian Dictionary*, kīpuka.

Kaona facilitated the indirectness with which Hawaiian was often spoken, reflecting the polite and clever nature of native Hawaiian speakers. In certain situations it was customary to express an idea in an indirect way, as direct speech at times was considered rude. For example, one who is unskilled in the sport of surfing is suggestively unskilled at lovemaking as seen in the following *ʻōlelo noʻeau*.

> Hāwāwā ka heʻenalu, haki ka papa.
> *When the surf rider is unskilled, the board is broken.*
> When the man is unskilled, the woman is dissatisfied.[96]

Elements and events in nature were also often used to poetically depict a love affair as with the waterfall and lehua blossom referenced in the following example.

> Nui ka hanu o Limahuli in a lehua o Luluʻupali.
> *Heavily-sighed Limahuli falls over the* lehua *blossoms of Luluʻupali.*
> Said of a person in love who sighs over a sweetheart.[97]

This analogy of the most intimate of emotions compared with the beauty and complexities of the natural environment speaks to the intimate relationship that Hawaiians had with the natural environment. It demonstrates a perspective of mutuality between man and nature.

4.5 Layers in a *Mele*

It is typical of mele to have elements of *kaona* in the lyrics. This is exemplified in the song ʻKaulana Nā Pua,' composed by Ellen Prendergast in 1893, a pivotal year in the history of Hawaiʻi. This was the year of the overthrow of the Hawaiian government and Queen Liliʻuokalani was deposed from her throne. Cut off from the outside world, she was imprisoned in her own palace. As an inconspicuous means of getting information to her, her people would wrap bouquets of flowers in newspapers updating her on the events occurring outside the palace walls; a poetic act of kaona in and of itself. The song was written in defiance of her imprisonment and represents until today the loyalty and cleverness of her people.

ʻKaulana Nā Pua,' is briefly examined here to further demonstrate how the layers of information, including kaona, manifest in Hawaiian oral traditions.[98]

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[96] Pukui, *ʻŌlelo Noʻeau,* 60.
[97] Ibid., 255.

Kaulana nā pua a'o Hawai'i	Famous are the children of Hawai'i
Kūpa'a mahope o ka 'āina	Ever loyal to the land
Hiki mai ka 'elele o ka loko 'ino	When the evil-hearted messenger comes
Palapala 'ānunu me ka pākaha.	With his greed document of extortion.
Pane mai Hawai'i moku o Keawe.	Hawai'i, land of Keawe answers.
Kōkua nā Hono a'o Pi'ilani.	Pi'ilani's bays help.
Kāko'o mai Kaua'i o Mano	Mano's Kauai lends support
Pa'apū me ke one Kakuhihewa.	And so do the sands of Kakuhihewa.
'A'ole a'e kau i ka pūlima	No one will fix a signature
Maluna o ka pepa o ka 'enemi	To the paper of the enemy
Ho'ohui 'āina kū'ai hewa	With its sin of annexation
I ka pono sivila a'o ke kanaka	And sale of native civil rights.
'A'ole mākou a'e minamina	We do not value
I ka pu'ukālā a ke aupuni.	The government's sums of money.
Ua lawa mākou i ka pōhaku,	We are satisfied with the stones,
I ka 'ai kamaha'o o ka 'āina.	Astonishing food of the land.
Mahope mākou o Lili'u-lani	We back Lili'u-lani
A loa'a ē ka pono a ka 'āina.	Who has won the rights of the land
(A kau hou 'ia e ke kalaunu)	(She will be crowned again)
Ha'ina 'ia mai ana ka puana	Tell the story
Ka po'e i aloha i ka 'āina.	Of the people who love their land

Table 8 illustrates how each of the layers of information discussed in this chapter appears in this *mele*. The English translation of the verses indicated in the *unuhi* layer preserves the general meaning of *aloha 'āina* **'**love for and loyalty to the land.**'** The demonstrative *mai* is repeated throughout the *mele* and indicates the direction of the action words that precede it in a phrase. *Mai* in this sense does not have an English translation, so grasping the concepts in the *pilina 'ōlelo* layer is dependent on one's understanding of the function of these words. Finally, the expression in the *kīpuka* layer is an example of *kaona*. Stones are used as a metaphor to explain the Hawaiians value of land over money or power.

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[98] Samuel H. Elbert and Noelani Mahoe, *Na Mele o Hawai'i Nei: 101 Hawaiian Songs* as recorded by Eleanor Nordyke and Martha Noyes in '"Kaulana Nā Pua": A Voice for Sovereignty,' *The Hawaiian Journal of History*, vol 27, 1993.

Table 8: Layers of information in 'Kaulana Nā Pua'

Layer	'Ōlelo Element	Interpretation
Unuhi	'Famous are the children of Hawai'i Ever loyal to the land' 'Tell the story Of the people who love their land'	*Aloha 'āina* - love for and loyalty to the land
Pilina 'Ōlelo	*Hiki mai* *Pane mai* *Kāko'o mai*	'comes' 'answers' 'supports' direction of action indicated by *mai*
Kīpuka	'We are satisfied with the stones, Astonishing food of the land."	*Aloha 'āina* expressed in metaphor; stones as representations of the land are of more value than the government's paper money (also example of *kaona*)

4.6 Conclusion

By incorporating the organizational system introduced in this chapter into the Papa Ho'ohuli 'Ōlelo, Table 9 more specifically communicates how concepts from Hawaiian language can be translated into architecture.

Table 9: Layers in Papa Ho'ohuli 'Ōlelo

'Ōlelo Element	Interpretation	Architectural Translation
Unuhi		
Aloha 'āina	Love of the land	Sensory connection to nature; strong views, opportunity for outdoor spaces
Pilina 'Ōlelo		
Pronouns (*'oukou, mākou, kākou*)	Social and spatial distinctions	Organization/seperation of spaces - public/shared spaces, private spaces, semi-private spaces
Locational nouns (*mauka, makai*)	Awareness of self, relative to ocean and land	Create views or moments reminding user of his relative location in a specific place
Kīpuka		
Kaona – metaphors of nature and love	Intimacy with nature	indoor/outdoor spaces indistinguished

CHAPTER 5: Project Research

Kūkulu ka ʻike i ka ʻōpua.

Knowledge is set up in the clouds.

Clouds are observed for signs and omens.

-ʻŌlelo Noʻeau #1907[99]

[99] Pukui, ʻŌlelo Noʻeau, 57

5.1 Introduction

The previous chapters interpreted the Hawaiian perspective of general concepts as demonstrated by a broad range of oral traditions. This chapter more specifically examines the Hawaiian perspective on the built environment as illustrated through Hawaiian language stories and accounts, expressions and terminology relating to architecture; in other words, *architecture, ma ka ʻōlelo Hawaiʻi*.

For the purpose of identifying specific concepts that can inform the subsequent design problem, the following discussion addresses the Hawaiian perspective on education, elements of building construction, and the traditional architect.

5.2 The Program – *Hoʻonaʻauao*

Hoʻonaʻauao is 'to educate.' The root word, *naʻauao* 'enlightened or intelligent,' literally translates to *daylight mind*.[100] The analogy of light and intelligence here, conceptually solicits attention to the lighting in an educational space. This section identifies terms and expressions related to learning in order to consider the programmatic requirements of a school from a Hawaiian perspective.

Aʻo is the Hawaiian word for both teach and learn, distinguished only by the directional cues that follow it; *aʻo aku*, meaning to teach and *aʻo mai*, to learn. [101] The shared term implies mutuality between teaching and learning in Hawaiian thinking. The teachers in traditional times included the *kūpuna* 'elders,' i.e., the ones who possessed wisdom, and those with specific knowledge such as the *kuhikuhipuʻuone* 'traditional architect'. Just as importantly, however, the people learned from *ka ʻāina, ke kai, a me ka lewa*, 'the land, the sea, and the air.' This is a concept which recognizes that all these elements are interconnected.[102] Learning at all ages derived from the intricacies and dynamic nature of each of these spaces and the way that they exist and function together in nature. *ʻIke pāpālua* 'second sight' is the knowledge that was transmitted through these elements as passed on through the experience and knowledge of the *kūpuna*.[103]

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[100] Pukui and Elbert, *Hawaiian Dictionary*, "hoʻonaʻauao
[101] Pukui and Elbert, *Hawaiian Dictionary*, "aʻo"
[102] PBR Hawaii, *Palapala Hoʻonohonoho Mokuʻāina O Kahoʻolawe" Kahoʻolawe Use Plan*: Kahoʻolawe Island Use Plan, Kahoʻolawe Island Reserve Commission, State of Hawaiʻi, (Honolulu: State of Hawai'i, 1995), 38.
[103] Ibid.

The contents taught in a Hawaiian curriculum, as well as the methods for teaching them are inherently informed by place and thus, different from the contents and methods in another type of curriculum. It is practical to understand the needs of a client from his or her perspective. Designing a Hawaiian school, necessitates being familiar with Hawaiian perspective. Traditionally, the *ʻāina* facilitated the concept of school and the family was responsible for teaching each other. In Pukui's *Nānā i ke Kumu* she explains the traditional practice of educating a child within the ʻohana or family unit.

> "Within the ʻohana elders taught youngsters to fish, raise taro, weave and build. Here proper behavior was taught, and rituals and *kapus* (taboos) memorized. Here family history was maintained in handed-down chants…"[104]

Hawaiian terms and expressions associated with *school*, *teaching* and *learning* are insightful of Hawaiian perspective of these concepts including certain *ʻōlelo noʻeau*. For example, the following suggests a physical separation of programmatic spaces. That is, the acknowledgment that there are other *hālau* is evidence that within a Hawaiian worldview, there are more than just one school of thought.

> ʻAʻohe pau ka ʻike i ka hālau hoʻokahi.
> *All knowledge is not taught in the same school.*
> One can learn from many sources. [105]

Another *ʻōlelo noʻeau* exhibits the value Hawaiians put on educating children. One was considered ignorant if he was not familiar with phases of the moon as the moon was a significant guide in traditional farming and fishing and navigation.

> Kamaliʻi ʻike ʻole i ka helu pō: Muku nei, Muku ka malama, Hilo nei, kau ka Hoaka.
> *Children who do not know the moon phases: Muku is here, Muku the moon; Hilo comes next, then Hoaka.*
> The first part of a child's chant for learning the names of the moon phases. Also said of one who does not know the answer to a question or is ignorant. He is compared to a small child who has not learned the moon phases. [106]

Table 10 identifies these terms and expressions and their applicability to architecture.

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[104] Pukui, *Nānā i ke Kumu*, 168.
[105] Pukui, *ʻŌlelo Noʻeau*, 24.
[106] Pukui, *ʻŌlelo Noʻeau*, 159.

Table 10: Translating expressions relating to learning and teaching into architecture

ʻŌlelo Element	Interpretation	Design Translation
hoʻonaʻauao	to educate; daylight mind	natural daylighting for educational spaces
aʻo	teach, learn Implied mutuality	equal hierarchy of space designated for teacher and students – large shared classroom space
#203 *ʻAʻohe pau ka ʻike i ka hālau hoʻokahi*.	*All knowledge is not taught in the same school.*	programmatic functions can be physically separated into different spaces
#1471 *Kamaliʻi ʻike ʻole i ka helu pō*.	*Children who do not know the moon phases* Significance of moon phases related to agriculture and aquaculture, subsistence, navigation	visual and physical connection to land, sky, ocean - perhaps perforations in alignment with moon path

5.3 The Building

Significant implications of the Hawaiian perspective of the built environment can be drawn from different elements of Hawaiian language that manifest in traditional Hawaiian architecture. This section is a discussion of the elements involved in traditional Hawaiian construction where evidence of personification appears. It concludes by implementing the three-part methodology to organize the concepts discussed in an applicable way.

5.3.1 Traditional Measuring

In traditional construction there were no tape measures to measure the length of a felled tree or the distance between posts. Hawaiians traditionally used their body parts as units of measurement as shown in Figure 14. Hawaiians were intimately connected even to the construction process of a *hale*, ʻtraditional Hawaiian house.ʼ

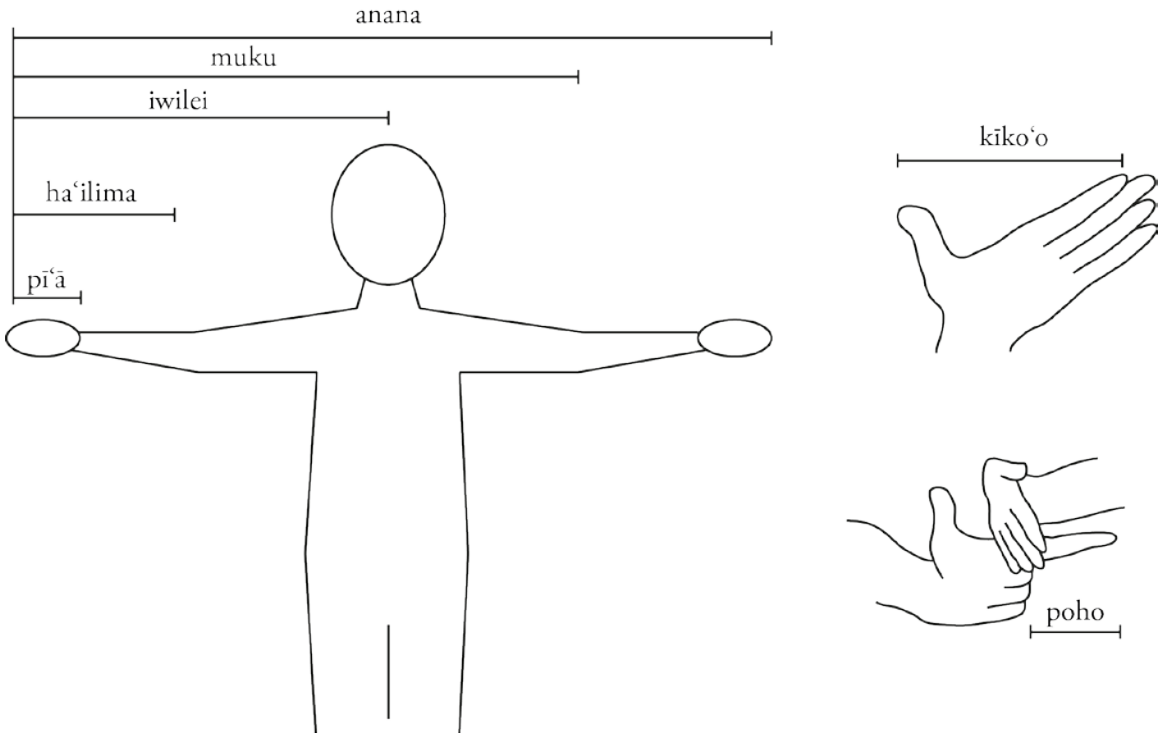

Figure 14: Nā Ana Kino[107]

Table 11: Nā Ana Kino, traditional Hawaiian measurement system[108]

anana	Fathom, formerly the distance between tips of longest fingers of a man, measured with arms extended on each side
muku	Measure of length from fingertips of one hand to the [bent] elbow of the other arm, when both arms are extended to the side
iwilei	Measure of length from the collarbone to the tip of the middle finger with the arm extended; yard
haʻilima	Distance from the elbow to the end of the fingers
pīʻā	Measure of one hand's distance
kīkoʻo	Span; extent; a measure from the end of the thumb to the end of the index finger
poho	Hollow or palm of the hand, hollow of the foot, depression, hollow
ʻowā	half the width of a finger[109]

[107] Reproduced by author. Artist unknown, 'Nā Ana Kino,' Hale Kuamoʻo.
[108] Pukui and Elbert, *Hawaiian Dictionary.*
[109] Apple, *Hawaiian Thatched House*, 82

5.3.2 Construction Elements

The terminology of certain parts of the hale also has implications of personification. One observation is the implication of the term *hoaka* which is the arch over the main doorway of the hale. *Hoaka* is a crescent shape as well as the second moon phase in the Hawaiian moon phase cycle, also a crescent.[110] While several other moon phases are crescent shaped, the appearance of this moon phase is a mere sliver of light indicating a deliberate identification of this doorway element. The sliver of light perhaps implies the specific persons allowed to enter a house and thus the significance of entering a house.[111]

As with the system of measurement, different construction elements also use body parts to identify specific parts of the hale. The *kohe*, *ule*, and *'auwae*, are the mortise, tenon, and curved notch below the tenon, respectively. These terms also translate to vagina, penis, and chin, respectively as the construction elements named after these body parts function in similar ways.

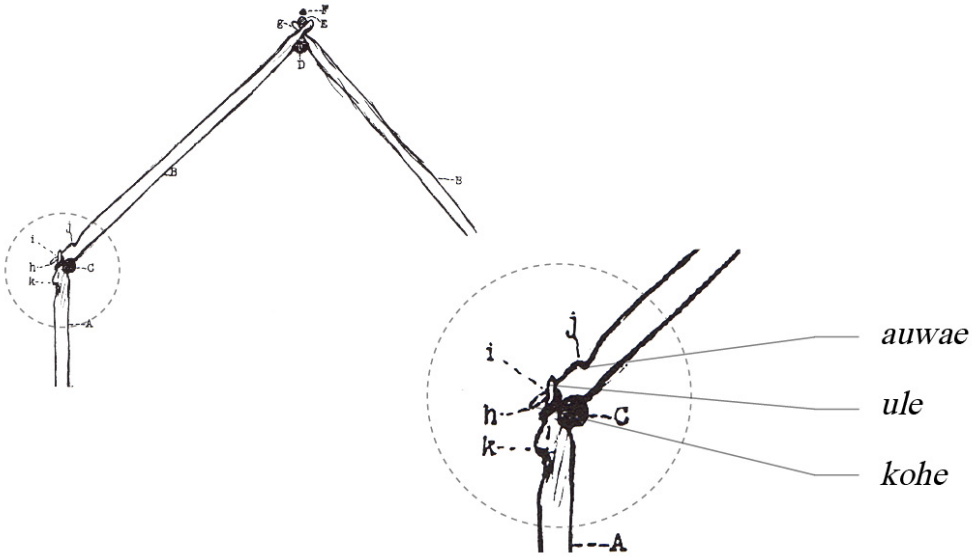

Figure 15: Construction elements in the hale[112]

[110] Pukui and Elbert, *Hawaiian Dictionary*, "hoaka"
[111] Kaiwinui Yoon, conversation with author, Honolulu, March 28, 2013.
[112] Malo, *Hawaiian Antiquities*, 119-120.

Table 12: Papa Hoʻohuli ʻŌlelo: Hale Construction Elements

ʻŌlelo Element	Interpretation	Design Translation
Hoaka	crescent shape; second moon phase, significance of entering a building	arch over main doorway in hale[113]
Kohe	vagina; functional personification	mortise, fork at the lower ends of house rafters (the underside of the fork was cut back as far as the commencement of the fork or further to form the ʻauwae)
Ule	penis; functional personification	tenon, pointed end of a post which enters the crotch of a rafter (also called maʻi kāne).
ʻAuwae	Chin; personification	Curved notch cut on the outer side of a post below the base of a tenon
Nā ana kino	traditional measuring system, personification of construction	used to measure in traditional construction

Table 12 above organizes the relationship between the terms used to identify different elements of traditional construction. It indicates a pattern of relating parts of the hale as well as hale construction to the human body. The implication of personification is consistent with that observed in the study of the Māori *wharenui*. The application of this concept of personification in architecture today would appear at the more developed scale in the design process as they are more specific concepts that deal more intimately with the structure of the building. Using them to inform the conceptual phase of the design process has proven to yield awkward results as discussed in Chapter 1 with the example of Ka Haka ʻUla o Keʻelikōlani, the Hawaiian language school at UH Hilo. The designers referenced parts of the face as formal concepts for the building design.

5.4 The Architect

Kuhikuhipuʻuone is a Hawaiian term commonly used when speaking of an architect. Literally translated, the term means ʻpoint out the sand dunes,ʼ referring to his knowledge in choosing the appropriate site for *heiau* ʻplace of worship,ʼ *hale*, or *loko iʻa* ʻfishpondʼ.[114] The *kuhikuhipuʻuone* was the person who oversaw the building process. He belonged to the elite class of *kahuna* ʻpriestsʼ whose

[113] Kepelino, edited by Martha Warren Beckwith. *Kepelino's Traditions of Hawaii*. (Honolulu: Bishop Museum, 1932), 100-101.
[114] Pukui and Elbert, *Hawaiian Dictionary*, "kuhikuhipuʻuone"

intimate connection to the spiritual realm afforded them expertise in various professions. An examination of the role of *kuhikuhipu'uone* yields a set of data that elucidates who he was from a traditional perspective and the extent of his *kuleana* which exceeded informing the building process.

The process of building involved a spiritual element and protocol. Actions were deliberate and substantiated by the Hawaiian belief system. Abraham Fornander,[115] D.K. Wai'ale'ale,[116] and Stephen Desha[117] all recorded accounts of the spiritual knowledge a *kuhikuhipu'uone* possessed.

Fornander, a noted judge, journalist and historian in Hawai'i, wrote accounts of the *kuhikuhipu'uone* in *Fornander Collection of Hawaiian Antiquities and Folk-lore*, volumes 5 and 6. He provided a list of ten statements about the class of priests to which a *kuhikuhipu'uone* belonged and his expertise pertaining to the *hale*. Fornander compares the *kuhikuhipu'uone* with the *kilokilo* 'diviner,' and the *nanauli* 'one who predicted the weather by looking at the sky.' All of them had the capacity to foresee the future.

Certain omens the priests observed indicated bad locations for building a house. A burial for example, is described as a location of "lamenting noises." These noises were interpreted by the priests as a sure sign of death to all who intended to live there.[118] During the construction of a *hale*, specific signs indicated a poor fortune for the one who lived there. For example, if a house was being built and the posts were set in their holes and the rafters in place, then the posts were taken out again perhaps to correct a mistake, it was seen as a reflection of the person who would live there. He would not stay in the house for very long as he, like the posts, would leave shortly after the house was built.[119]

Similarly, in Wai'ale'ale's account of the *kuhikuhipu'uone* in *He Buke Kilokilo Hale*, he too generates a list of omens pertaining to the *hale*. Many of the ones he list are the same as the omens recorded by Fornander. In addition, however, Wai'ale'ale explains the different types of *kahua* 'building sites' houses were built on and their respective meanings. One site is called *'ōhiki,* which he describes as a

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[115] Abraham Fornander, and Thomas G. Thomas G. Thrum. *Fornander collection of Hawaiian antiquities and folk-lore.* (Honolulu: Bishop Museum Press), 1917
[116] DK Wai'ale'ale, *He Buke Kilokilo Hale*, Hawaii State Archives 1834
[117] Desha, Stephen, Lōkahi Antonio, and Brooke Parker. *He mo'olelo ka'ao no Kekūhaupi'o ke koa kaulana o ke au o Kamehameha ka Nui.* (Hilo: Hale Kuamo'o-Kikowaena)
[118] Fornander and Thrum, *Fornander Collection of Hawaiian Antiquities*, vol 6, 60.
[119] Ibid.

bad site, one full of holes like the holes in the sand dug by the *ʻōhiki* ʻsand crab.ʼ It is an indication of vulnerability to sickness and the holes must be covered up and the site then leveled.[120] Another site he talks about is the *naho*, or hollow, also called the *naho-manini*.[121] This site is compared to an underground oven on which a house is built, said to be of good fortune.

Finally, Desha's accounts take a different perspective in *He moʻolelo kaʻao no Kekūhaupiʻo ke koa kaulana o ke au o Kamehameha ka Nui*. In this *moʻolelo*, the *kuhikuhipuʻuone* is portrayed primarily as an adviser of the chiefs, foretelling the conditions of war. Kekūhaupiʻo was a *kuhikuhipuʻuone* of Kamehameha I. The *kuleana* of the *kuhikuhipuʻuone* as well as other *kahuna* in his class was to read the signs in the sky, in dreams, and even in their *ʻawa* ʻkava' cups and forecast whether it was a good time to go to war.[122]

These accounts, while not all having to do with *hale*, indicate the extent of knowledge that *kuhikuhipuʻuone* possessed. Table 13 lists terms associated with *kuhikuhipuʻuone* indicates the expanse of his role. It describes the divinity that accompanied his title and the spiritual source from which he gained his knowledge. In accounts involving a *kuhikuhipuʻuone*, his position is often referred to as *kilo* or *kilokilo*, both defined in the table below. The implications of this substitution of titles extend his ability of observation beyond the micro conditions of the immediate atmosphere as he was versed in astrology as well as prophecy.

Table 13: Terms associated with Kuhikuhipuʻuone (Definitions retrieved from Elbert and Pukui's Dictionary)[123]

ʻŌlelo Hawaiʻi	Translation
kuhikuhipuʻuone	seer, soothsayer, necromancer, class of priests who advised concerning building and locating of temples, homes, fish ponds, a professional architect
kāula	prophet, seer, magician
kilo	stargazer, reader of omens, seer, astrologer, necromancer; to watch closely, spy, examine, look around, observe, forecast
kilo lani	soothsayer
kilokilo	enchantment, magic, fortune telling; magical
nīnau ʻuhane	necromancer; communicated with spirits to forecast
ʻōuli	sign, omen, portent, prognostication, nature, symptom, character
nanauli	one who predicted the weather by looking at the sky[124]

[120] Waiʻaleʻale, *He Buke Kilokilo Hale*, 3.
[121] Pukui and Elbert, *Hawaiian Dictionary*, "naho"
[122] Desha, *He moʻolelo kaʻao no Kekūhaupiʻo*, 57.
[123] Pukui and Elbert, *Hawaiian Dictionary.*

The accounts as documented by Fornander, Waiʻaleʻale and Desha, in addition to the terms associated with *kuhikuhipuʻuone* clearly distinguish his role from today's professional architect in both status and scope of knowledge. He ranked high on the political ladder and his counsel was sought by *aliʻi* for reasons not only pertaining to the location or building of a structure, but often times for his ability to forecast conditions of war. A *kuhikuhipuʻuone* was traditionally revered and respected for the vastness of his knowledge bestowed upon him from the spiritual realm. Through practiced and acute observation of natural phenomena through time, *kuhikuhipuʻuone* were informed of the past, present and future as they understood that all three were connected and informed by one another. With the knowledge passed down from *kahuna* that trained him and his own observation and understanding of events that occurred during his lifetime, a *kuhikuhipuʻuone* was responsible for a wealth of knowledge that enabled him to advise and forecast things not yet seen. His *kuleana*, therefore, exceeded the limits of constructing buildings.

Similarly, but less impressively, the architect of today is responsible for a wealth of knowledge in various disciplines within the architecture field. The position of the architect is significantly underappreciated. In addition to respect, the profession substantially lacks the intimate understanding and spiritual connection to the elements of nature that once were the principal factors that informed architecture. A shift in priority and source of information undoubtedly contributes to the disconnection between place and architecture in a contemporary Hawaiʻi. This validates looking through the lens of the Hawaiian language to refocus unbalanced priorities and relearn how to think about the environment and how to responsibly exist within it.

5.5 Conclusion

Architects today having knowledge in different disciplines seems to echo the role of a *kuhikuhipuʻuone*. The most apparent difference is the sources of knowledge used to inform decisions about buildings. When information comes from careful observations of elements in nature, a balanced relationship with the natural environment is much more conceivable. When methods of construction rely on the measurements of the body parts, the physical connection to that which is built reinforces a balanced relationship between the built and the natural environment. Architects

[124] Andrews, Lorrin, and Henry H. Parker. *A Dictionary of the Hawaiian Language.* Honolulu: 1865, "nanauli."

and designers today have been too far removed from the natural environment as critical source of information. The Hawaiian language is an important means for reconnecting to that source as it communicates the thinking of a people defined by their relationship with the environment.

These accounts indicate that sustainability and sense of place were not foreign concepts, but were naturally inherent in native thinking and therefore, inherent in traditional Hawaiian architecture. Relearning how to think about architecture in Hawai'i as it was once understood, fosters a sensitivity to the natural elements that should then inevitably inform place responsive design. This theory is further explored in the next chapter where two specific sites are analyzed according to the language traditions that define and also distinguish them from one another.

CHAPTER 6: Site Research

O ke kahua mamua, mahope ke kūkulu.

The site first, and then the building.

Learn all you can, then practice.

-ʻŌlelo Noʻeau #2459[125]

[125] Pukui, ʻŌlelo Noʻeau, 268.

6.1 Introduction

Understanding a site in the preliminary stages of the design process is critical to ultimately arriving at a design solution that responds sensitively to place. As indicated by the traditional site analysis done by a *kuhikuhipu'uone*, it is important to understand the site at a multisensory level. Unfortunately, the site analysis stage of predesign research is often performed in a manner which limits the dimensions of site information that can be gathered. This chapter demonstrates the site analysis conventionally accepted today and then introduces a methodology, specific to Hawai'i, for analyzing a site on a level beyond the five senses. It examines the *'ōlelo* traditions specific to a place providing valuable and pertinent information about the site. By employing both methods, a substantial set of data is acquired for a more thorough understanding of how to appropriately intervene on a site.

6.2 Conventional Site Analysis

Today, conventional site analysis is a gathering of information about a particular site to inform site design. It includes but is not limited to wind direction, sun path, rainfall and topography. This is all necessary data offering a basic understanding of the existing conditions of a site. This same data traditionally informed the *kuhikuhipu'uone* about the construction of *heiau* 'place of worship' and other structures, but the collection of this data was substantially more rigorous. It was informed by meticulous and spiritual observation of a site over a course of time. The following is a basic analysis of the existing conditions, as practiced today, of the two sites for design intervention in the next chapter: Hakipu'u and Lē'ahi. The analyses are done at a macroclimatic scale.

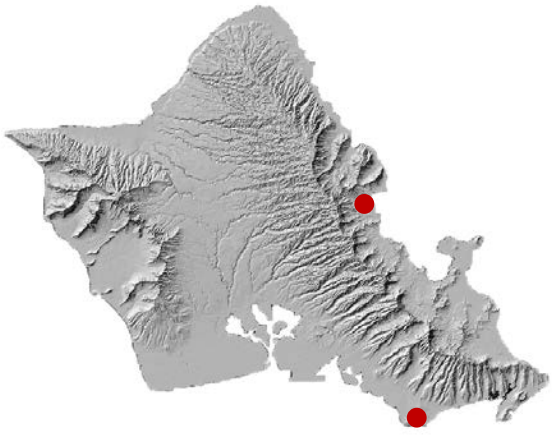

Figure 16: O'ahu Island; Hakipu'u and Lē'ahi Sites

6.2.1 Site 1: Hakipuʻu

The first site is a five acre parcel at the *makai* 'seaward' end of Hakipuʻu, an *ahupuaʻa* on the windward side of Oʻahu Island. It is in the Koʻolaupoko district between Kualoa and Waikāne. This rural location characteristically receives more consistent rainfall than the other parts of Oʻahu and thus is the more verdant part of the island. Kamehameha Highway runs along the west and *mauka* 'inland' side of the site. There is an existing building as well as a designated farm plot. The rest of the site is covered by trees and bushes. The topography changes in elevation by forty feet from the *mauka* to the *makai* end. It boasts a 360 degree view of Hakipuʻu *ahupuaʻa*, with clear visual connection to the three peaks that define its boundaries, Puʻu Kānehoalani, Puʻu ʻŌhulehule, and Puʻu Pueo, with Kāneʻohe bay to the east. In the latter part of the day, the sun goes behind these peaks directly *mauka* of the site. The prevailing wind comes from the northeast, while the *Kona* 'leeward' winds come from the southwest direction along the Koʻolau mountain range.

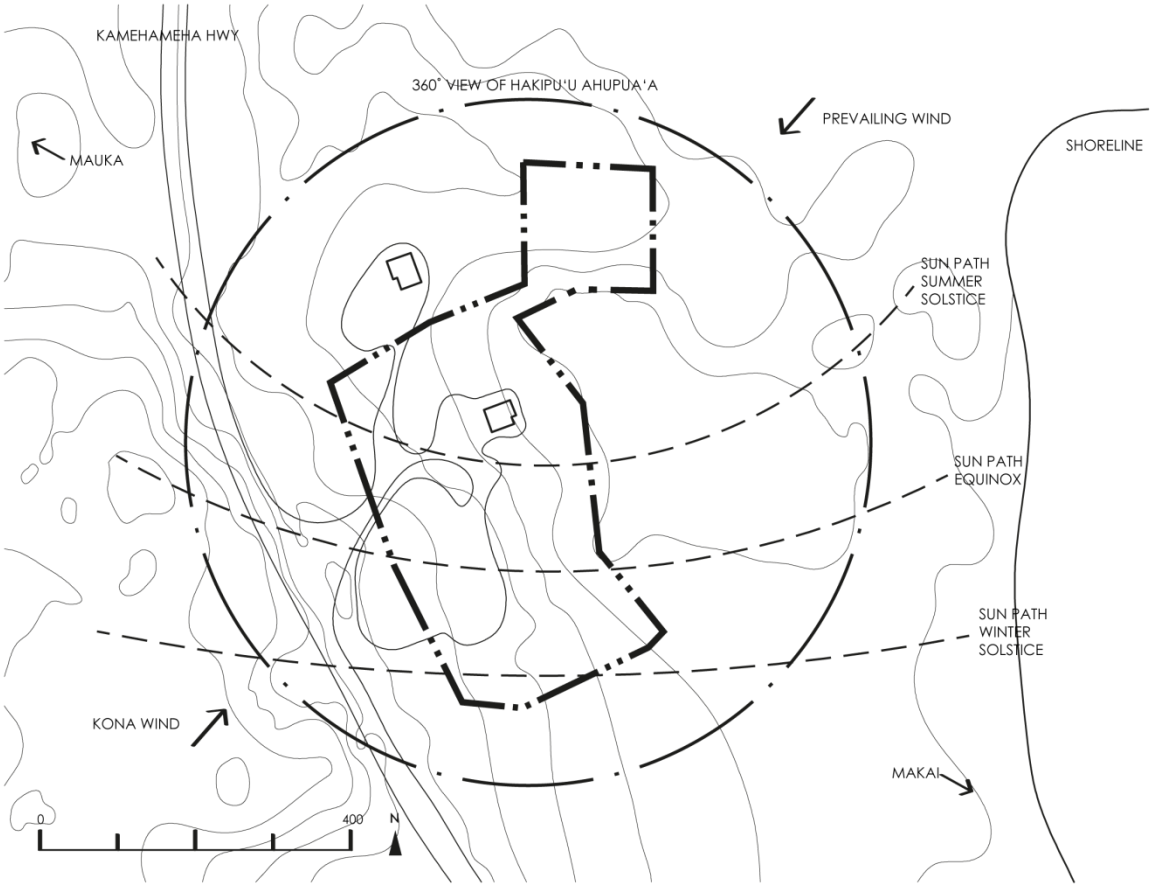

Figure 17: Hakipuʻu Conventional Site Analysis

6.2.2 Site 2: Lēʻahi

The second site is in the *ahupuaʻa* of Waikīkī. It is an eight acre parcel located on the western slope of Lēʻahi, more commonly known today as Diamond Head. Lēʻahi is a densely developed residential area in the Kona district on the south eastern side of Oʻahu. The rainfall in this area is seasonal and far less frequent, causing a dry and barren landscape for much of the year. Monsarrat Avenue which turns into Diamond Head Road is in front and to the north of the site. With the mountain slope and crater rim as the background directly south, there is still a 180 degree view of the *ahupuaʻa* of Waikīkī from the mountains all the way to the ocean. The topography changes drastically in elevation from the north to south ends of the site by 120 feet. There is existing terracing as well as hardscape which is overgrown with weeds and brush. The length of the site is on a primarily east-west axis with heavy solar load throughout most of the day. The prevailing winds from the northeast wrap around Lēʻahi and blow across the site toward the ocean *Kona* winds come from the southwest for portions of the year.

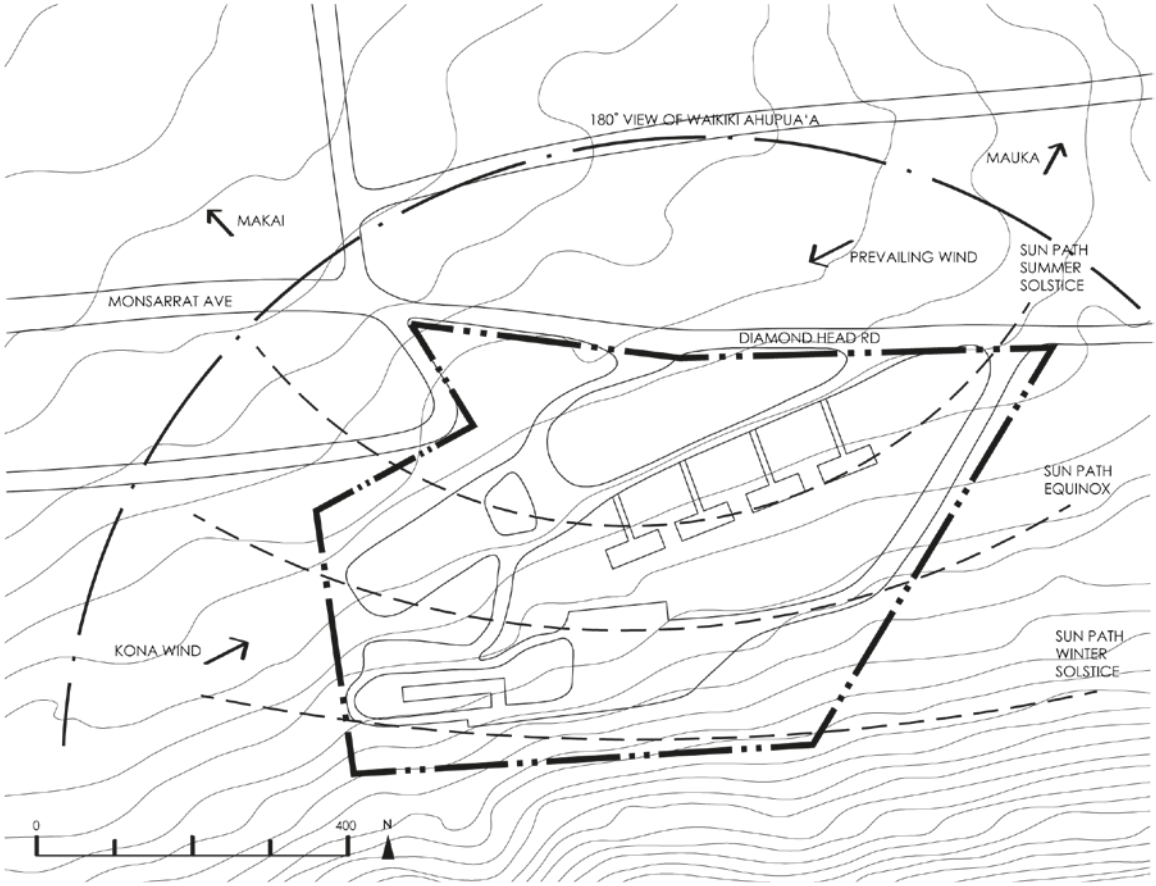

Figure 18: Lēʻahi Conventional Site Analysis

6.3 ʻŌlelo Site Mapping

This section introduces a methodology which employs the *ʻōlelo* traditions of a place to better understand the character of the specific site. These traditions include place names, names of winds and rains found in the area, and the names of flora and fauna. Also, the *moʻolelo* ʻstories' that derive from or reference the place, as told in the forms of *mele*, *oli*, and *pule*, offer a wealth of information about the history of a place and especially, how the native people understood that place.

> *Ma o ke kapa ʻana i ka inoa ʻāina, ua, a makani; ke mele ʻana i ke mele; ke oli ʻoli i ke oli; ka moʻolelo ʻana i ka moʻolelo; ka hoʻopuka ʻana i ka welina; a me ka nānā ʻana i nā hōʻailona a nā ʻōuli o ka lani, ka ʻāina, a me ke kai e hoʻopaʻa ʻia ai ka ʻāina i loko o ka waihona noʻonoʻo o ka Hawaiʻi.*[126]
>
> Because of the naming of the land, rain, and wind; the singing of the songs; the chanting of the chants; the telling of the stories; the utterance of the *welina*; and the watching of the signs and omens of the heavens, the land, and the sea, the land is fastened in the thinking vault [mind] of the Hawaiian.[127]

Exploring the Hawaiian worldview through traditions of Hawaiian language enhances the sensory capacity for experiencing a site. Allowing the site to speak through its own *ʻōlelo* traditions, serves to reestablish a deeper familiarity between man and place and ultimately, a more balanced relationship. This balance thus informs a more appropriate means of designing for a particular site.

6.3.1 Papakū Makawalu

The ʻŌlelo Site Mapping implements the Hawaiian concept of *Papakū Makawalu* to inform the investigative process for a specific site. *Papakū makawalu* is explained as "the ability of our *kūpuna* ʻancestors' to categorize and organize our natural world and all systems of existence within the universe."[128] It is a methodology for studying and understanding the universe from a Hawaiian worldview.

Elbert and Pukui define *papakū* as ʻfoundation, as of the earth; floor, as of ocean; bed, as of a stream.'[129] *Makawalu* is defined as ʻnumerous, many, much…*lit.,* eight eyes.'[130] In a presentation on

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[126] Oliveira, "Hōʻike Honua," 63.
[127] Author's translation.
[128] Edith Kanakaʻole Foundation, *Papakū Makawalu*. Accessed March, 2013. https://www.edithkanakaolefoundation.org/current-projects/papaku-makawalu/.
[129] Pukui and Elbert, *Hawaiian Dictionary,* "papakū."

Papakū Makawalu, Dr. Pualani Kanahele describes *papakū* as a stable element made up of many components which are the *makawalu*. Each of these components are *papakū* in and of themselves and are composed of their own *makawalu*. As a perpetual process, Dr. Kanahele likens *Papakū Makawalu* to the *hāpu'u* tree fern. The trunk is a *papakū* and the fronds are *makawalu*. Each frond is its own *papakū*, and the leaves are *makawalu*. Each leaf is a *papakū* and its leaflets are *makawalu*. When the *'ōpu'u* 'young leaf' uncurls and becomes a mature leaf that is a moment of *makawalu*.[131]

This concept is applied to a process for interpreting *oli,* which have been preserved through time in memory and oral practice. The chants are condensed forms of information, and in their entirety are the *papakū*. They are deconstructed into smaller parts, the *makawalu*, which are examined and then broken into more parts; a process which continues until the implicit concepts are graspable and then the *oli* are reconstructed with a more comprehensive understanding of their original meanings.[132] In this way *Papakū Makawalu* serves as a pedagogy for the Hawaiian worldview.[133]

Papakū Makawalu is extended to the investigative process employed in the 'Ōlelo Site Mapping in order to interpret the data collected from each site in a Hawaiian way. This is further explained in the following section.

6.3.2 Investigative Process

The investigative process begins with the initial gathering of information about the place, delineated by the *'ōlelo* traditions checklist provided below. This gathering continues throughout the process as more information is revealed.

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[130] Pukui and Elbert, *Hawaiian Dictionary*, "makawalu."
[131] Pualani Kanahele, "Papakū Makawalu Part 1," Vimeo video, 41:39, posted by The Kohala Center, 2009, http://vimeo.com/4621142.
[132] Lākea Trask-Batti, phone conversation with author, April 2013.
[133] Pualani Kanahele, "Papakū Makawalu Part 1," Vimeo video, 41:39, posted by The Kohala Center, 2009, http://vimeo.com/4621142.

Table 14: ʻŌlelo Data Table

	ʻŌlelo Element	Interpretation (This column to be filled in)
Piko Center; place of focus	*Moku* ʻdistrict' *Ahupuaʻa* ʻland division within moku' *ʻIli* ʻland division within ahupuaʻa'	
***Inoa o laila* (Permanent, fixed)** Names of permanent and fixed elements exclusive of the place	*Puʻu* ʻhill' *Loko Iʻa* ʻfishpond' *Kahawai/Muliwai/Punawai* ʻriver/stream/spring, water features' *Heiau* ʻtemple, place of worship' *Lele* ʻsacrificial altar' *Koʻa* ʻshrine' *Pōhaku* ʻrocks'	
***Inoa i laila* (Transient)** Names of elements found at the place but may exist elsewhere	*Ua* ʻrain' *Makani* ʻwind' *Mea kanu* ʻplant, flora' *Holoholona* ʻanimal, fauna'	
Moʻolelo kō laila Storied elements that reference the place	*Moʻolelo* ʻstories' *Mele* ʻsongs' *Oli* ʻchants' *Pule* ʻprayers' *ʻŌlelo Noʻeau* ʻproverbial sayings'	
Wahi pili/kokoke Names of places adjacent or related to piko	*Moku* *Ahupuaʻa* *ʻIli*	

Identify ***Piko.***

From the gathered information, the *piko* ʻcenter' of the investigation is then identified so as to keep the research focused. This involves understanding and acknowledging the greater context to which the *piko* belongs (ie. *mokupuni*, *moku*, *ahupuaʻa*, *ʻili*, *moʻo*). In this case, the term *piko* is intended to mean the source or focal point of the investigation. There are different conditions that determine exactly what the *piko* of the project is as in some cases it may be as specific as the exact *puʻu* on which the site is located. In other cases, the *piko* may be the entire *ahupuaʻa*. The purpose of the

investigation is to inform the design process as specifically as possible in order to achieve a place-responsive design solution. The *piko* serves as the first *papakū* in the investigation.

Identify ***Inoa*** associated with the *piko.*

The names of *wahi pana* 'noted places' which are in the immediate locality of the *piko*, offer clues about that place. As explained in Chapter 3, the significance of naming in Hawaiian thinking indicates the importance of that which is named. The translations of the names may have insight about the place or serve as a link for finding more telling information about the place.

Inoa o laila are the fixed, physical features that are exclusive of a particular site including *pu'u*, *loko i'a*, *kahawai*, *muliwai*, *punawai*, *heiau*, and *pōhaku*. The stories that are associated with these features are links to understanding the greater context of the place.

Inoa i laila are the physical features of the site which are more transient such as the wind and rain, flora and fauna, also have names that similarly offer insight about the place in their translations and associated stories.

These *wahi pana* are the *makawalu* of the *piko*. After identifying these features, each is then a new *papakū* and their meanings are new *makawalu*. The meanings and stories behinds each feature are interpreted through the translation of the names.

Identify ***Mo'olelo***, storied elements of the place.

Mo'olelo represents the intangible features of a site, also *makawalu* of the *piko*. Included in this category are the specific stories or *mo'olelo*, the *mele*, *oli*, *pule* and *'ōlelo no'eau* which reference the place. First, the *mo'olelo* specifically associated with the *piko* are identified, and then those associated with the names of the physical features. These *mo'olelo*, when analyzed, offer insight about a particular place through the three layers of information of the Hawaiian language. The characters and themes that appear in the stories suggest ideas that are significant in the Hawaiian worldview. How these ideas are expressed, indicate spatial and social relationships that exist in the Hawaiian worldview.

Identify ***Wahi Pili/Kokoke.***

In order to gain a holistic understanding of a place it is valuable and necessary to search beyond the geographical boundaries of that place for additional information that indicates the specific meaning of the place as understood from a Hawaiian worldview. Identifying the surrounding places and their respective physical and intangible features can reveal how the *piko* is related to its greater context.

This methodology of site analysis was implemented to research the sites of Hakipuʻu and Lēʻahi, in order to observe how the process and eventual conclusions that develop, contrast between two different site investigations. The data gathered from the investigation process is listed in Table 15 and Table 16.

6.3.3 Hakipuʻu

Table 15: Hakipuʻu Data Table

	ʻŌlelo Element	Interpretation
Piko	HAKIPUʻU [*Ahupuaʻa*]	*lit.* broken hill[1]
Inoa o laila **(Permanent, fixed)**	Pahalona/Pāhālōna [*ʻIli*]	*lit.* peering wall[1]
	Kumalae [*ʻIli*]	
	Lupehu [*ʻIli*]	*lit.* scatter swelling (for Lūpehu, Molokaʻi)[1]
	Puukaluha/Puukalaha [*ʻIli*]	*kālaha* ʻstroke in lua fighting;ʼ[2] *ka+ laha* ʻgourd calabash painted with patterns; a kind of yam;ʼ[2] *kaluhā* ʻsedge growing in water; name of a fishʼ[2]
	Kanohoanahopu [*ʻIli*]	
	Puʻu Pueo [*Puʻu*]	ʻowl hillʼ[2]
	Puʻu ʻŌhulehule [*Puʻu*]	ʻbald hillʼ (Parker Dictionary, 670); *ʻōhule* ʻbald, bald person;ʼ ʻdefeated without getting a single scoreʼ[2]
	Puʻu Kānehoalani [*Puʻu*]	*lit.* Kānehoalani hill;[1] named for a god who "ruled the heavens," father of Pele; hill pierced by Kūʻilioloa, legendary dog (Place Names, 198)
	Kahiwa [*Pōhaku*]	*lit.* the chosen one (for Kahiwa, Molokaʻi),[1] *hiwa* ʻdesirable blackness; choice, *see *hiwahiwa* [2] *hiwahiwa* ʻbeloved, favorite;ʼ[2] guardian stone (Liko Hoe)
	Nānāhoa [*Pōhaku*]	*nānā* ʻto look at, observe;ʼ[2] *hoa* ʻcompanion, friend;ʼ[2]
	Kaluau [*Pōhaku*]	*lūʻau* ʻyoung taro tops; greenish meat in turtle; kind of soft porous stoneʼ[2]
	Mōliʻi [*Loko iʻa*]	*lit.* small section;[1] little known story of a giant heʻe that dwells there, comes out over the wall into the ocean to climb Mokoliʻi covering the top (Mahealani Cypher)
	Puakea [*Heiau*]	*lit.* white blossom[1]
	Pahulu [*Heiau*]	
	Koana [*Wahi ma uka*]	*koana* ʻspacing, space as between rows of stitching in a quilt; bruised or parched spot on fruit, as breadfruitʼ[2]

	Puna [*Wahi ma uka*]	*puna* ‘spring’[2]
	Kapuna [*Wahi ma uka*]	*lit.* the spring (Kapuna, Molokaʻi)[1]
	Hena [*Wahi ma uka*]	*hena* ‘buttocks; mons pubis; hollow of the thigh; nakedness’[2]
	Hakipuʻu [*Kahawai*]	*lit. broken hill*[1]
	Kealohiwai [*Kahawai*]	*ʻalohi* ‘to shine, glitter, sparkle; bright, brilliant; splendor, brilliancy’[2]
Inoa i laila **(Transient)**	kiliua [*Ua/Makani*]	wind assoc. with Waikāne[2]
	nāulu [*Ua*]	sudden shower[2]
	kēhau [*Makani*]	from *mele* by Kawai Hoe
	Holopali [*Makani*]	wind of Kualoa that passes through Hakipuʻu (Liko Hoe)
	ʻawa [*Mea kanu*]	kava shrub[2]
	ʻulu [*Mea kanu*]	breadfruit[2]
Moʻolelo kō laila **(*Moʻolelo* of the place)**	Kumulipo, wā 15 [*Oli*]	*I Kahaluu kewe i Waikane ka piko,* *Haule i Hakipuu i Kualoa,* *O Maui a ka Malo,* *O ka Hookala kupua o ka moku,* *He moku-no.* (He Pule Hoolaa Alii 65) At Kahaluu was the after birth, at Waikane the navel. It dropped at Hakipuu, at Kualoa. For this is Maui of the *malo*, The wonder of the land, Yes! of the land. (The Kumulipo 76)
	Palaoa Lawalu o Hakipuʻu [*Oli*]	
	Chant of Kualiʻi [*Oli*]	*Ka wai hole a ka ili*/The water that cleanses the skin *I ka wai e hookane ana*,/[Is] the water which befriends a man *Ka hakipuu i ka manawa*,/At the change of the season *Ka loana o ka aina*/The length and breadth of the land. *Ka awa loha i ili*/The *awa* that withers the skin (Fornander 399/398)
	Nānāhoa [*Moʻolelo*]	A child forbidden from looking at a woman until married, turned into stone when he stared at a

		beautiful naked woman, sleeping on the beach.[1]
	Kaupe (Kaʻupe) [*Moʻolelo*]	Man-eating dog-man (Sites of Oʻahu)
	Kahai (Kahaʻi) [*Moʻolelo*]	
	Hakipuʻu ka Piko, Kawai Hoe [*Mele*]	
	#248 *E aha ʻia ana o Hakipuʻu i ka palaoa lāwalu ʻono a Kaʻehu?* [*ʻŌlelo Noʻeau*]	
	Kapuna [*Moʻolelo*]	
Inoa kokoke **(Nearby names)**	Waikāne (Waiakāne) [*Ahupuaʻa*]	
	Kualoa (Palikū) [*Ahupuaʻa*]	
	Mokoliʻi [*Moku liʻiliʻi*]	

[1]From Place Names of Hawaiʻi

[2]Translation interpreted by author using Elbert and Pukui, Hawaiian-English Dictionary

6.3.4 Lēʻahi

Table 16: Lēʻahi Data Table

	ʻŌlelo Element	Interpretation
Piko	LĒʻAHI, Laeʻahi, Diamond Head (Daimana Hila, Kaimana Hila) [*Puʻu*]	*lēʻahi* from *laeʻahi* ʻbrow of ʻahi,ʼ compared by Hiʻiaka[3]
Inoa o laila **(Permanent, fixed)**	Waikīkī [*Ahupuaʻa*] (Pre Māhele Oʻahu map, 1987)	*lit.* spouting water[1]
	Pālolo [*Ahupuaʻa*]	*lit.* clay[1]
	Papaʻenaʻena [*Heiau*]	*luakini* (Fornander); in Pālolo, temple for human sacrifice, destroyed by Kanaina in 1856;[3] surf *heiau* (Kanahele)
	Pahu-a-Maui [*Heiau*]	dedicated to seafarers and fishermen (Waikīkī: a History of Forgetting…, Feeser, 16)
	Kupalaha/Kuapalaha [*Heiau*]	possible sister heiau to Papaʻenaʻena (Kanahele, 61)/(Annual for Hawaiʻi 1907, 57)
	Ahi [*Heiau*]	(Tomonari, 35)
	Makahuna [*Heiau*]	dedicated to Kanaloa, god of seas, tended to by fishermen and seamen (Kanahele, 61)
	Kalahuewehe/Kalehuawehe	surf course observed from Papaʻenaʻena (Kanahele)
	Kapua	Landing point for Kamehameha's canoes (Fornander, 474)
Inoa i laila **(Transient)**	Kanilehua [*Ua*]	by Kanalu (Buke Mele Lahui); in Mānoa
	ʻŪkiu [*Makani*]	by JK Kamali (Buke Mele Lahui), name of a chilly north wind[2]
	Makahuna [*Ua*]	in Pālolo (Hiʻiaka, 291)
	Līlīlehua [*Ua*]	in Pālolo (Hiʻiaka, 293), wind and rain famous at Pālolo (Ka Ua, Rose, 17)
	āholehole [*Iʻa]*	(Ka Hana Lawaiʻa Vol. II - Oral History Interviews)
Moʻolelo kō laila **(*Moʻolelo* of the**	Pele mā [*Moʻolelo*]	Pele arrives in Hawaiʻi (Polynesian Family Systems in Kaʻu)

place)	#2277 [*ʻŌlelo Noʻeau*] *Nani Lēʻahi, he maka no Kahiki.*	
	Uwila i luna o Manoa [*Mele*]	by Kanalu (Buke Mele Lāhui, 80)
	Ke Aloha i ka Puuwai [*Mele*]	by Kamali (Buke Mele Lāhui, 15)
	Na Puuwai Koa o Laeahi [*Mele*]	by Puu-o-kilohana (Buke Mele Lahui, 54)
	#2654 *Pili pono ka lā i Papaʻenaʻena.* [*ʻŌlelo Noʻeau*]	
Inoa kokoke **(Nearby names)**	Kapahulu [*ʻIli*]	
	Kaneloa [*Moʻo*]	
	Kekio [*ʻIli kū*]	
	Kaluahole [*ʻIli kū*]	
	Palielaea [*Koʻa*]	shrine (Native Use of Fish in Hawaiʻi)
	Kapua [*ʻIli kū/Lele*]	*ʻIli* in Waikīkī,[3] *lele* in Palolo[3]
	Kapua [*Heiau/Lele*]	Temple of Kualiʻi (Fornander,Vol. IV); *luakini* in Kapiʻolani park area (Kanahele, 61)
	Helumoa/ʻĀpuakēhau [*Heiau*]	(Kanahele, 61)
	Hale Kumukaʻaha [*Heiau*]	(Kanahele, 61)
	Kalanihakoʻi [*Heiau*]	(Kanahele, 61)
	Mauʻoki [*Heiau*]	(Kanahele, 61); dedicated to Lono, god of harvest (Sites of Oʻahu, 279)
	Kalamakua [*Moʻolelo*]	high chief in Waikīkī, major taro farmer, champion surfer (Kanahele, 55)
	Kekio [*Lele*]	in Pālolo[3]
	Waimānalo [*Ahupuaʻa*]	
	Honolulu [*Ahupuaʻa*]	

[1]From Place Names of Hawaiʻi

[2]Translation interpreted by author using Elbert and Pukui, Hawaiian-English Dictionary

[3]From Hawaiian Place Names, ulukau.org

6.4 Integrated Site Analysis

As indicated by the data tables, there is an abundance of information to consider for thoroughly understanding a place. Arbitrary design decisions informed by a myriad of concepts result in fragmented architectural statements. While all dimensions of the site should be explored and considered, there needs to be a unifying element that justifies which features of the site inform the design and how. The value system of the client is this organizing element. Even though some ʻōlelo traditions represent significant stories or figures in the history of Hawaiʻi, they ideally need to be related to what the client values. This rationale also resonates with the deliberate nature that characterizes how ideas are expressed, whether spoken or unspoken, in the Hawaiian language.

6.4.1 Organizing the Information

Introduced briefly at the beginning of this dissertation, Hakipuʻu Learning Center (HLC) is the intended client for the design portion of this thesis. As it is a public charter school with a curriculum rooted in the traditional wisdom of Hawaiʻi, a new facility design that is informed by the *ʻōlelo* traditions specific to the location of the school is appropriate. HLC employs place-based and project-based learning as an unconventional method for teaching which gives students responsibility and authority over how they learn. The student in concert with the faculty, develops projects based on his or her own interests while meeting the Hawaiʻi Performance and Content Standards. The projects are also required to be related to Hawaiian culture.

In conversation, one of the HLC teachers explained the significant values of the school.[134] *Aloha ʻāina* ʻlove of the land,' refers to a traditional concept that emphasizes regard and care for the land, as well as the ocean as they are the source of life. This concept of stewardship is an important value that HLC perpetuates through its curriculum. Through the projects they design, students learn about the *ahupuaʻa* system. Within the boundaries of the *ahupuaʻa,* from the uplands to the sea, are all the resources necessary to sustain the people that belong to it. Subsistence is another value stemming from *aloha ʻāina* which involves understanding how to feed and care for oneself with minimal impact on the land and its resources. Students learn about traditional Hawaiian food culture as they get firsthand experience working in and caring for *loʻi kalo* ʻirrigated taro fields' and *loko iʻa* ʻfishponds.' HLC also uses canoe culture to teach students the values of *aloha ʻāina*, food culture and subsistence.

[134] Christopher Ikaika Nakahashi, conversation with author, Honolulu, March 28, 2013.

The *wa'a* 'canoe' is significant to Hawaiian culture as it represents the history and knowledge of the native people. They arrived in Hawai'i after long voyages at sea using superior navigational techniques, surviving and thriving on their knowledge of subsistence. Another tradition the school practices is *makahiki*. As described by Pukui, *makahiki* is an ancient festival starting in October which lasted for four months.[135] It was a celebration of harvest and included religious activities honoring the god Lono, who is associated with agriculture. It was a time of peace when war was *kapu* 'taboo' and replaced by traditional Hawaiian sports and games exhibiting feats of strength.[136] Figure 19 organizes the client's values into a chart to graphically demonstrate how the values relate to each other.

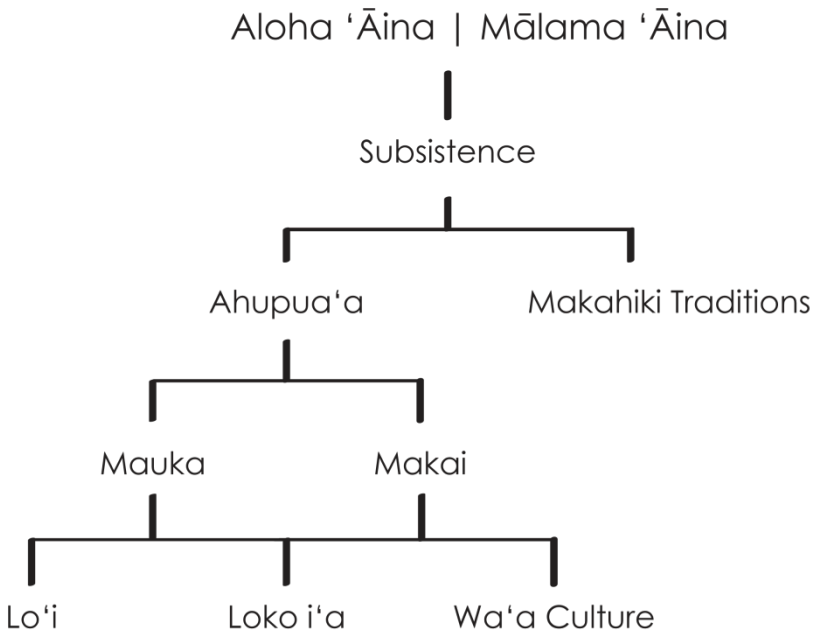

Figure 19: Hakipu'u Learning Center Value System

As specific values of the client, these should effectively influence the design process. In terms of this particular research, the values determine which *'ōlelo* traditions of the site will inform the design decisions and how.

Section 6.4.2 and 6.4.3 demonstrate the process of investigation through graphic organizations of the site features recorded on the Hakipu'u and Lē'ahi data tables. The graphic illustrations include Mind Maps, 'Ōlelo Site Maps, and finally, Integrated Site Analysis maps.

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[135] Pukui and Elbert, *Hawaiian Dictionary,* "makahiki"
[136] Malo, *Ka Moolelo Hawaii*, 141, 148.

Mind maps are diagrams used to visually organize information and identify how the components of the map relate to each other. The Mind Maps in this thesis are a graphic representation of the *Papakū Makawalu* research method. The *papakū* is placed at the center, which in this case is the *piko* of the investigation. The *makawalu* information radiates from this center according to how it relates to the *piko*. Connections between the different pieces of information can then be visually understood.

While the ʻŌlelo Site Maps serve to physically locate all the *ʻōlelo* features on the particular site, the Mind Maps aid in establishing connections between these *ʻōlelo* features. Guided by the value system of the client, the maps are used as a visual reference for determining which features are significantly and applicably relevant to the design project. These features which are highlighted on the ʻŌlelo Site Map inform an Integrated Site Analysis and ultimately the design.

6.4.2 Hakipuʻu

The Hakipuʻu Mind Map arranges the features from the data table according to their relationship to Hakipuʻu as the *piko* of the investigation. It should be noted here that there are countless ways of interpreting how the *ʻōlelo* features of the site relate to the client's values. This map merely illustrates one interpretation in order to demonstrate the particular process of design involved in this research.

In this interpretation, features of the site that signified *waʻa* culture were of particular interest. In this regard, the story of Kahaʻi and his seafaring abilities prove relevant. Kahaʻi was an expert voyager who lived in Hakipuʻu. His excellence at sea earned him the title of a chief. Kahaʻi was so revered he was excused from the protocol of lowering his sail out of respect for other chiefs. It is said that in 1795, Kamehameha even lowered his sail when passing Hakipuʻu in honor of Kahaʻi nearly 2000 years after his time. Kahaʻi is also credited for introducing *ʻulu* 'breadfruit' to Hawaiʻi. On a voyage to Sāmoa he brought back with him *ʻulu* and planted seeds in Hakipuʻu. His story also signifies subsistence, another value of the client, as he was revered for feeding the people of Hawaiʻi.[137]

Like *ʻulu*, *ʻawa* 'kava' is another canoe plant which the native people brought to Hawaiʻi on long voyages to sustain them at sea. This relates the story of Kapuna to the client's value of subsistence. Kapuna was a man who drank the intoxicating *ʻawa* from a place called Hena in the valley of

[137] Elspeth P Sterling and Catherine C. Summers. *Sites of Oahu.* (Honolulu: Dept. of Anthropology, Dept. of Education, Bernice P. Bishop Museum, 1978), 186.

Hakipuʻu. The intoxication was so strong it is said to have killed him. The place he died is called Kapuna, also in Hakipuʻu's valley where his legs became two ridges and his head, a small hill.[138]

In regards to the importance of *ahupuaʻa* awareness, the boundaries of Hakipuʻu *ahupuaʻa* are identified by the three peaks, Puʻu Pueo, Puʻu ʻŌhulehule, and Puʻu Kānehoalani. These features along with Kahiwa, considered the guardian stone, which sits on this boundary, bear significance to the client and their value of *ahupuaʻa*.[139]

The features highlighted in the Hakipuʻu Mind Map are incorporated with the features of the Conventional Site Analysis composing a more comprehensive Integrated Site Analysis.

[138] Abraham Fornander, *Fornander Collection…* vol. 5, 610
[139] Liko Hoe, conversation with author, Hakipuʻu, March 2012.

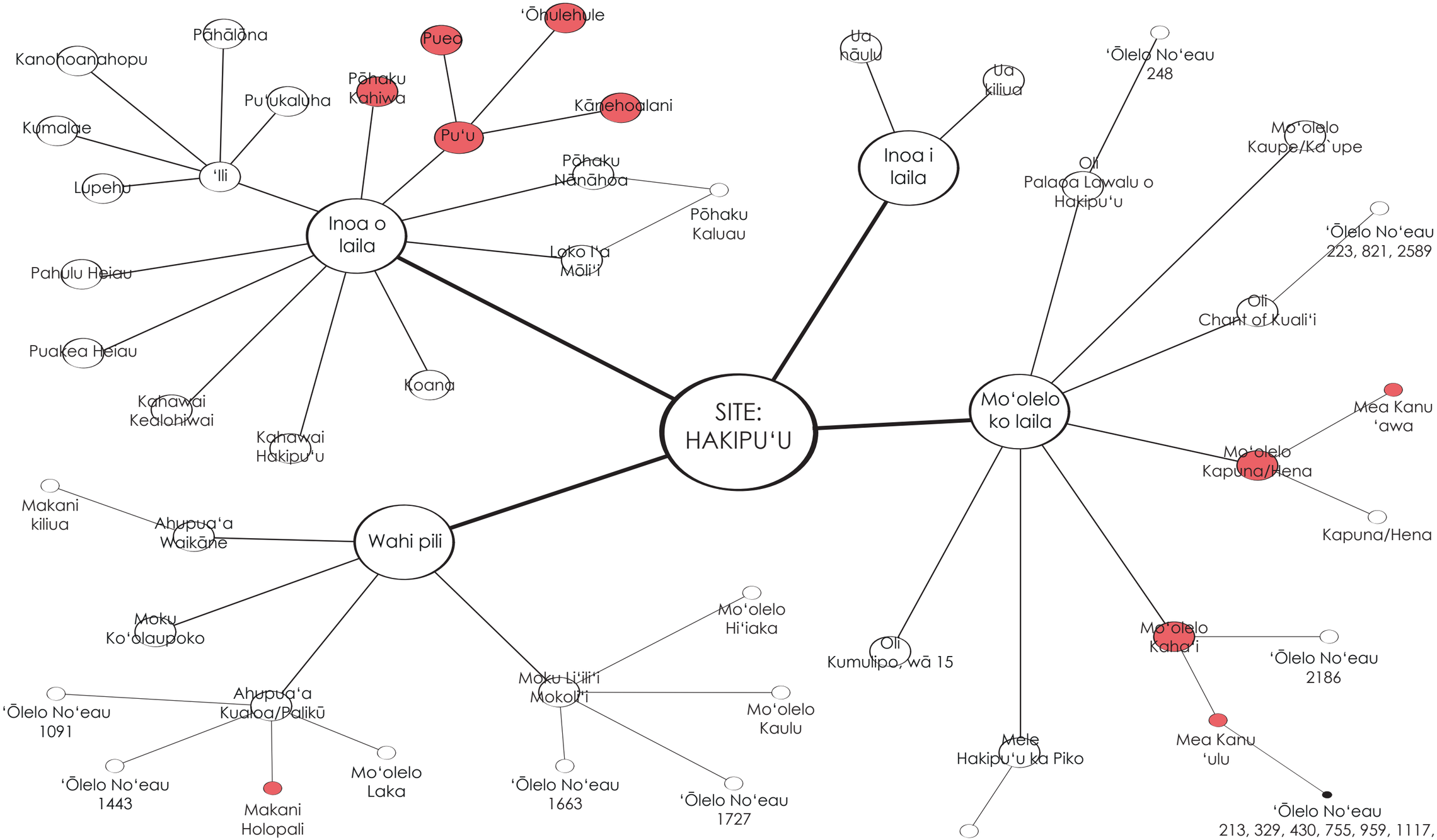

Figure 20: Hakipuʻu Mind Map

Figure 21: Extents of Hakipu‘u Research

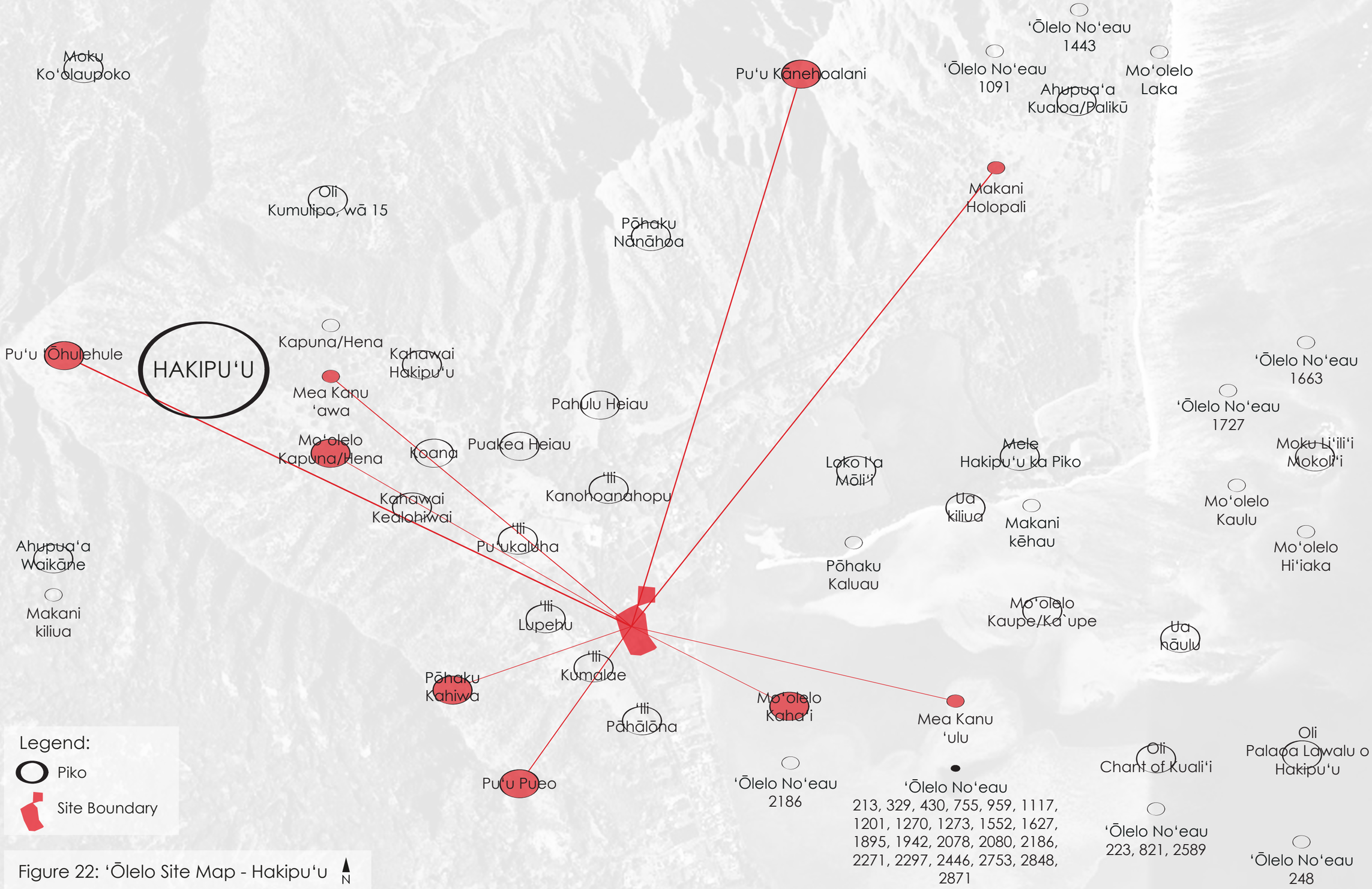

Figure 22: ʻŌlelo Site Map - Hakipuʻu

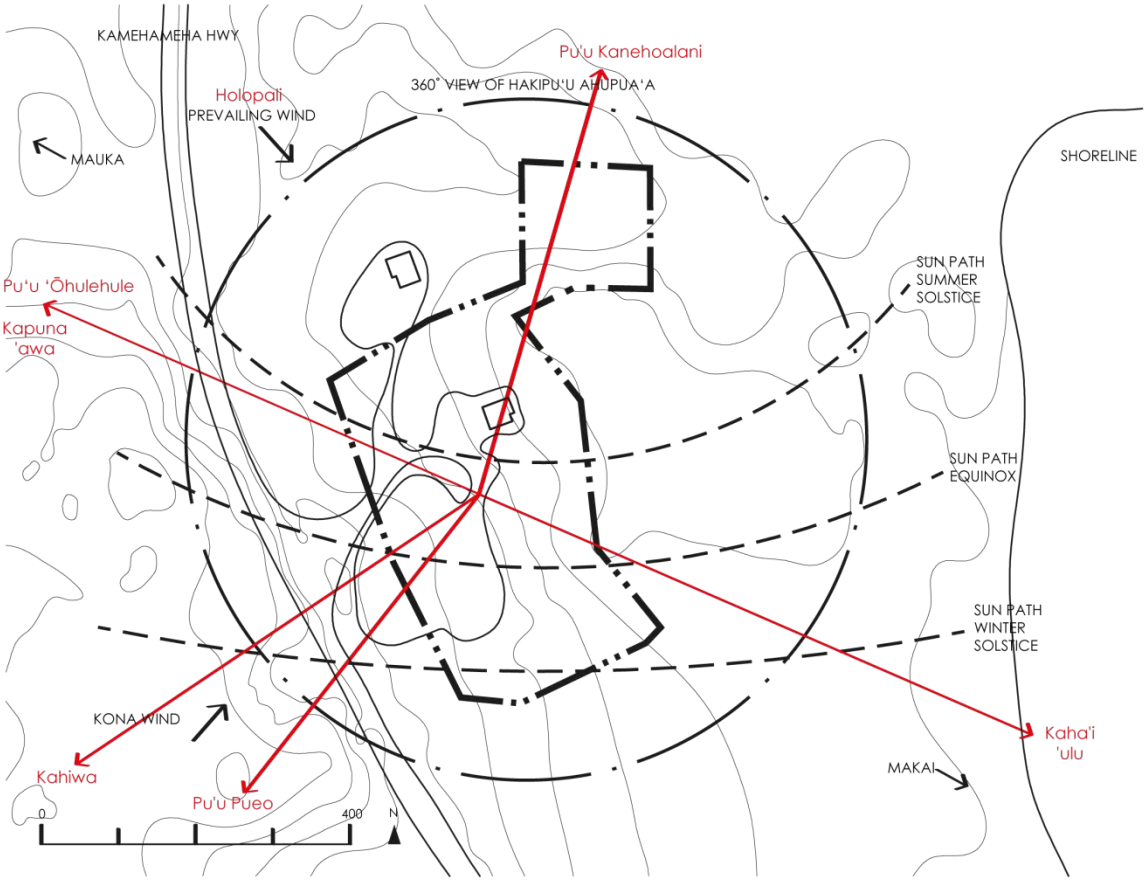

Figure 23: Hakipu‘u Integrated Site Analysis

Depicted in the Hakipu‘u Integrated Site Analysis are the existing physical conditions of the site and the *‘ōlelo* features which relate specifically to the client’s value system.

The site’s relationship to Pu‘u Pueo, Pu‘u ‘Ōhulehule, and Pu‘u Kānehoalani is identified as these are the three peaks which define the boundaries of Hakipu‘u ahupua‘a. The *mauka-makai* axis locates the site, and more importantly its users, within the *ahupua‘a* relative to two other very important defining elements of the *ahupua‘a* system; the mountain and the ocean.

Conveniently, the *mauka-makai* axis also addresses the two *mo‘olelo* from the ‘Ōlelo Site Map that reflect the client’s value of subsistence and *wa‘a* culture. The story of Kaha‘i is “located” *makai* of the site as his excellent seafaring abilities exemplify *wa‘a* culture. The story of Kapuna who drinks the intoxicating *‘awa* from the uplands of Hakipu‘u is located *mauka* of the site.

Note that the prevailing wind at this site does not come from the northeast as is typical from a macroclimatic perspective. The name of the wind that occurs at this site, Holopali, translates to ‘run

along the cliffs.' This is a perfect example of how an *ʻōlelo* feature can indidcate more specific and relevant information about a site than what is conventionally understood and accepted.

6.4.3 Lēʻahi

As Hakipuʻu is the client's namesake, its value system derives from the history of Hakipuʻu. The history of the site and the client's value system are closely related and therefore both inform the site analysis for Hakipuʻu. At the Lēʻahi site, however, the client's value system is distinctive from the history of the site and a relationship must be established which the Lēʻahi Mind Map facilitates. It also illustrates the difference in data gathering when the *piko* of the investigation is a smaller section of land than an entire ahupuaʻa as is the case for the Hakipuʻu site. Lēʻahi is a *puʻu* inside of the *ahupuaʻa* of Waikīkī.[140] While there is a wealth of data available about Lēʻahi itself, extending the investigation beyond the boundaries of the crater provided more data that allows for the greater Waikīkī to inform the ultimate design solution for this particular site. As depicted in the Conventional Site Analysis map, the site is positioned at a vantage point where most of the Waikīkī *ahupuaʻa* is visible making it an appropriate influence on the design.

Inferred from the mind map, there is a noticeable amount of *heiau* both at Lēʻahi and in Waikīkī. This attests to the history of Waikīkī as a very chiefly area, where many Oʻahu chiefs worked and resided, likely because of the abundance of food sources that once described the lowlands of this *ahupuaʻa*. One such chief was Kalamakuaakaipuholua, a major taro farmer and champion surfer among the other chiefs.[141] He was a high chief credited for originating the elaborate irrigation system in Waikīkī.[142] His story strongly resonates with the client's value of subsistence.

Kalamakuaakaipuholua's superior surfing ability reconnects the story to Lēʻahi as the major *heiau*, Papaʻenaʻena, is said to have been a surfing *heiau*, where high priests could survey the conditions at the surfing course, Kalehuawehe.[143] It is in the same waters of Waikīkī where Kalamakuaakaipuholua meets Maui chiefess, Keleanuinohoʻanaʻapiʻapi, also known for her surfing prowess.[144] The two marry and have a daughter who is born at Helumoa, another *heiau* in Wakīkī. She also has a child who is

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[140] Hawaiian Studies Institute, Oʻahu: Pre Mahele moku and ahupuaʻa [map] scale unknown, 1987.
[141] George Kanahele, *Waikīkī: 100BC - 1900AD, An Untold Story*, p. 55.
[142] Kamakau, as cited in Handy, E.S. Craighill and Elizabeth Green. *Native Planters in Old Hawaiʻi.* Edited by Genevieve A. Highland and Sadie j. Doyle. (Honolulu: Bishop Museum Press, 1972), 481.
[143] Kanahele, *Waikīkī,* 56.
[144] Kanahele, *Waikīkī,* 57.

raised at yet another Waikīkī *heiau*, called Mauʻoki in Mōʻiliʻili. This *heiau* was dedicated to Lono, god of harvest, adding to the story's recurring theme of subsistence.[145]

Subsistence as a value of the client reappears as a theme in the history of food production near the Lēʻahi site; a history which is interwoven with surfing and chiefs. These elements of the Lēʻahi Mind Map are highlighted and therefore inform the Integrated Site Analysis for Lēʻahi.

[145] Kanahele, *Waikīkī,* 60.

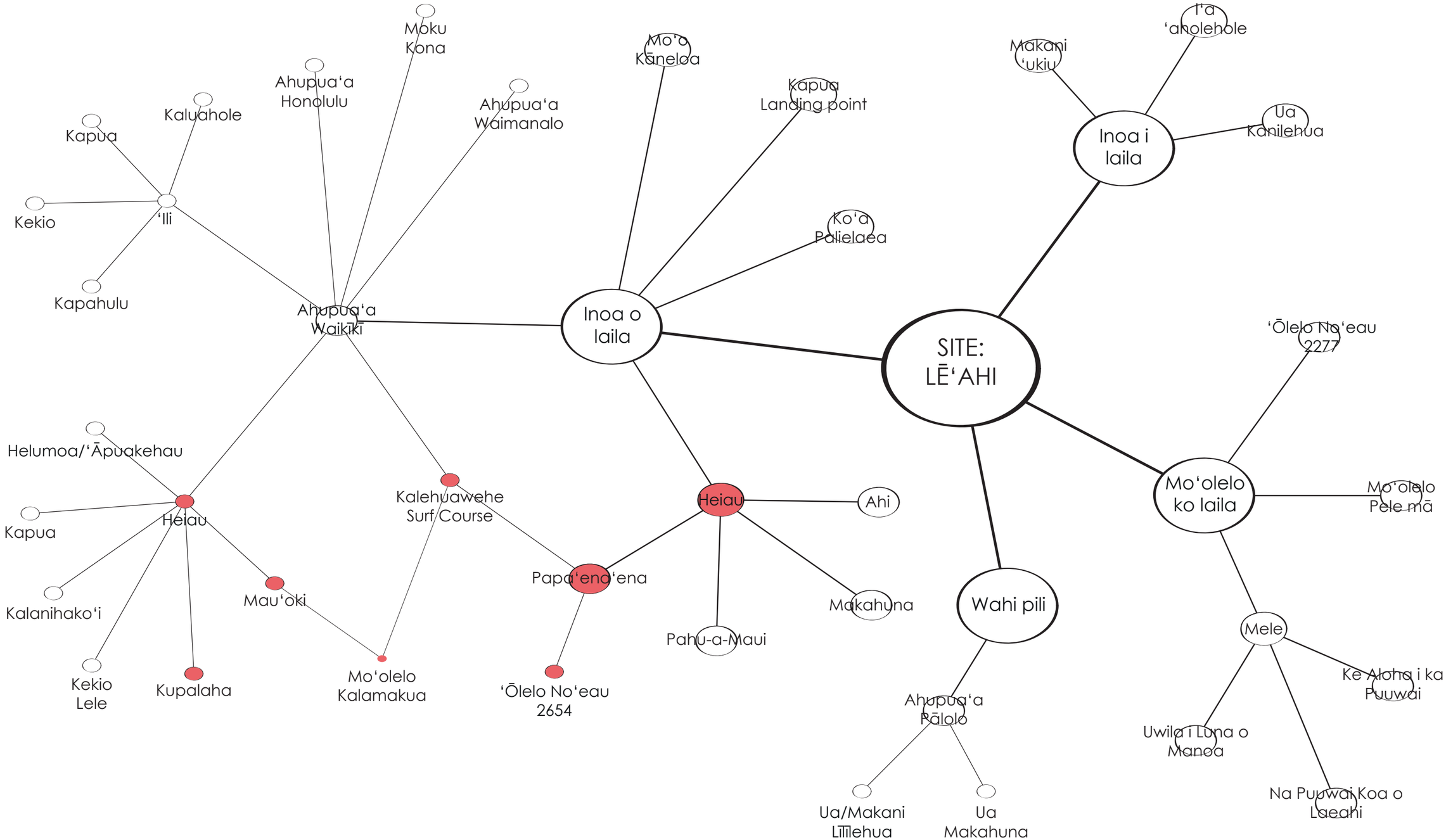


Figure 24: Lēʻahi Mind Map

Figure 25: Extents of Lē‘ahi Research

N

Ahupua‘a
Honolulu

Mele
Uwila i Luna o
Manoa

Mau‘oki
Heiau

Ua
Kanilehua

Ahupua‘a
Pālolo

Ua
Makahuna

Moku
Kona

Ahupua‘a
Waikīkī

Ua/Makani
Līlehua

Kulanihakoi
Heiau

Mo‘olelo
Kalamakua

Helumoa/‘Āpuakehau
Heiau

Kalehuawehe
Surf Course

Mo‘o
Kāneloa

Kupalaha
Heiau

‘Ili
Kapahulu

Mele
Ke Aloha i ka
Puuwai

Kapua
Heiau

Makani
‘ūkiu

Kapua
Landing point

‘Ili
Kapua

‘Ili
Kekio

Kekio
Lele

Ko‘a
Palielaea

LĒ‘AHI

Papa‘ena‘ena
Heiau

‘Ōlelo No‘eau
2277

Mele
Na Puuwai Koa o
Laeahi

‘Ili
Kaluahole

‘Ōlelo
No‘eau
2654

Makahuna
Heiau

Ahi
Heiau

Mo‘olelo
Pele mā

I‘a
‘aholehole

Pahu-a-Maui
Heiau

Legend:

Piko

Site Boundary

Figure 26: ‘Ōlelo Site Map - Lē‘ahi

N

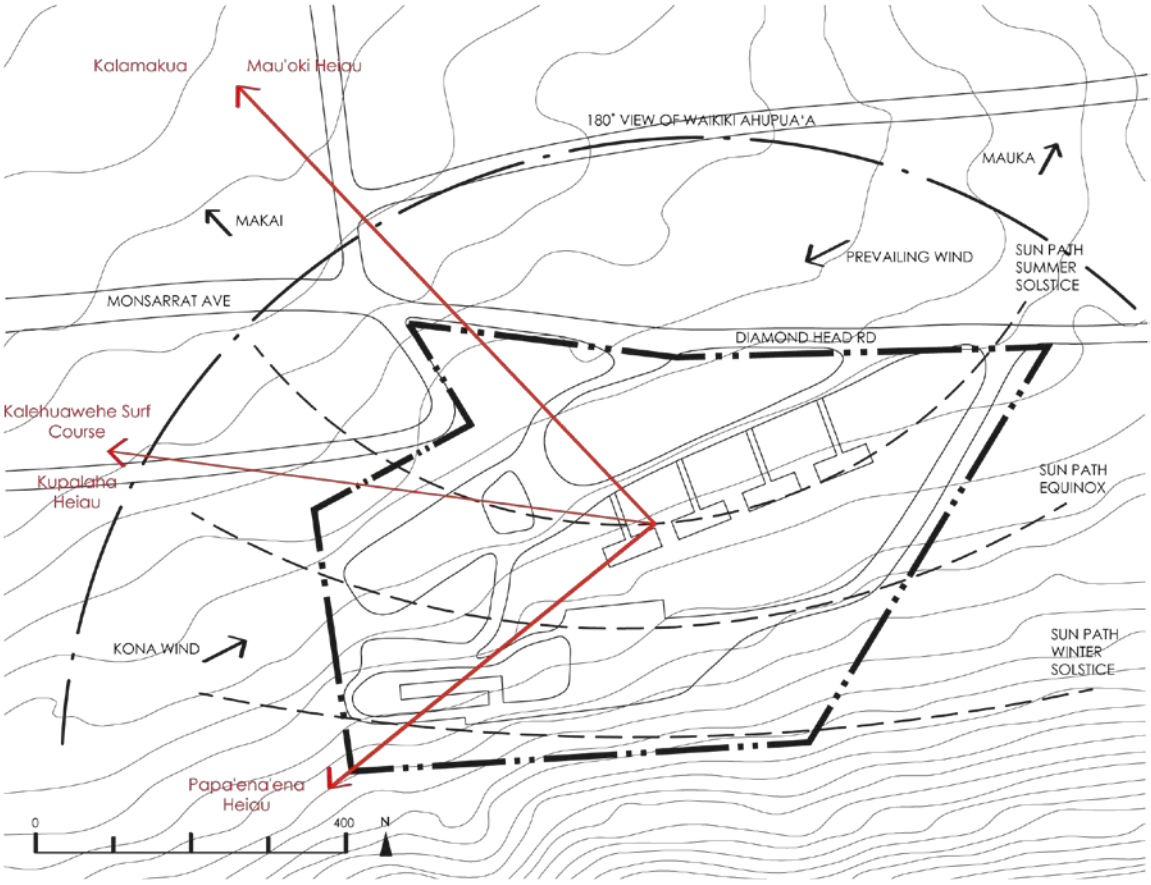


Figure 27: Integrated Site Analysis - Lēʻahi

The Integrated Site Analysis for Lēʻahi maintains the existing physical conditions of the site and incorporates the *ʻōlelo* features that represent the history of Waikīkī and Lēʻahi as it relates to the value system of the client.

As in the Hakipuʻu analysis, the relationship of the site to *mauka* and *makai* are depicted however, they are not on a single axis at Lēʻahi. This site is situated on the hillside of Lēʻahi giving it a panoramic vantage point of the Waikīkī *ahupuaʻa* from *mauka* to *makai*.

The site analysis designates the direction of Papaʻenaʻena *heiau* as well as Mauʻoki *heiau* both of which are found at Lēʻahi and in Waikīkī acknowledging the significance of surfing and subsistence to the chiefly history of the site. In the *makai* direction, the surf course Kalehuawehe (Kalahuewehe) is also identified.

Further inland from the shore, the area that was once suitable marshland for taro production is represented by the *moʻolelo* of high chief and major taro farmer, Kalamakuaakaipuholua.

As manifestations of Waikīkī and its history, these elements indicated on the Integrated Site Analysis will serve to inform the design for a school at the Lēʻahi site.

6.5 Conclusion

The conventional site analysis that documents the existing conditions of the site is a critical element of understanding the physical place. Analyzing and documenting the *ʻōlelo* features of the site is another critical dimension for more intimately knowing a place and thus how to design for it. These two methods combined facilitate a solid foundation for informing the design process. The Integrated Site Analysis maps inform the design process as explained in the next chapter.

CHAPTER 7: Hoʻohuli ʻŌlelo Design Process

Ma ka hana ka ʻike.

In working one learns.

-ʻŌlelo Noʻeau #2088[146]

[146] Pukui, ʻŌlelo Noʻeau, 227.

7.1 Introduction

The opening *ʻōlelo noʻeau* explains that one gains knowledge from practice. In this chapter the information gathered about Hawaiian perspective on traditional architecture, teaching and learning, as well as the site analysis of Hakipuʻu and Lēʻahi, is applied to a conceptual design for a school in order to demonstrate how language can inform design. This chapter exhibits the meaning of *ma ka hana ka ʻike* ʻin working one learnsʼ which is another important value of the client. Hakipuʻu Learning Center subscribes to this philosophy in that one can read about and gather information on different subjects but the knowledge is truly absorbed through the hands-on application of that information.

7.1.1 Design Problem

As explained earlier in the introduction of this thesis, Hakipuʻu Learning Center (HLC) is currently located on the Windward Community College campus in Kāneʻohe. The school is housed in three cottages at the western end of the campus. Although much of the curriculum requires work outside of the classroom whether in the *loʻi* or *loko iʻa*, the students still need a base facility. The target enrollment of 250+ students exceeds the capacity of the school's current facility limiting the students' potential for learning and therefore requiring a new and larger facility.

The HLC board members have engaged in brainstorming discussions towards developing a vision for the future of the school, determining major programmatic requirements that meet the needs of their unique curriculum. In a project based learning environment with a Hawaiian focus, the traditional classroom isn't suitable. A large open space is needed where interactive learning and teaching can occur between different grade levels while offering flexibility for separating groups for specialized learning. Also, ideally this larger space would be unified by a *piko* space which would facilitate the morning protocol. These requirements along with other needs of the school are outlined as follows:

Programmatic Requirements for Hakipuʻu Learning Center

1. Reception/Administration	600 sq ft
2. Large Class Space	2400 sq ft
3. Conference/Work Rooms	(3) 300 sq ft
4. Audio/Visual Room	300 sq ft
5. Educational Kitchen	600 sq ft
6. Workshop	800 sq ft
7. Restrooms	(2) 400 sq ft
8. Piko Space (outdoor)	N/A

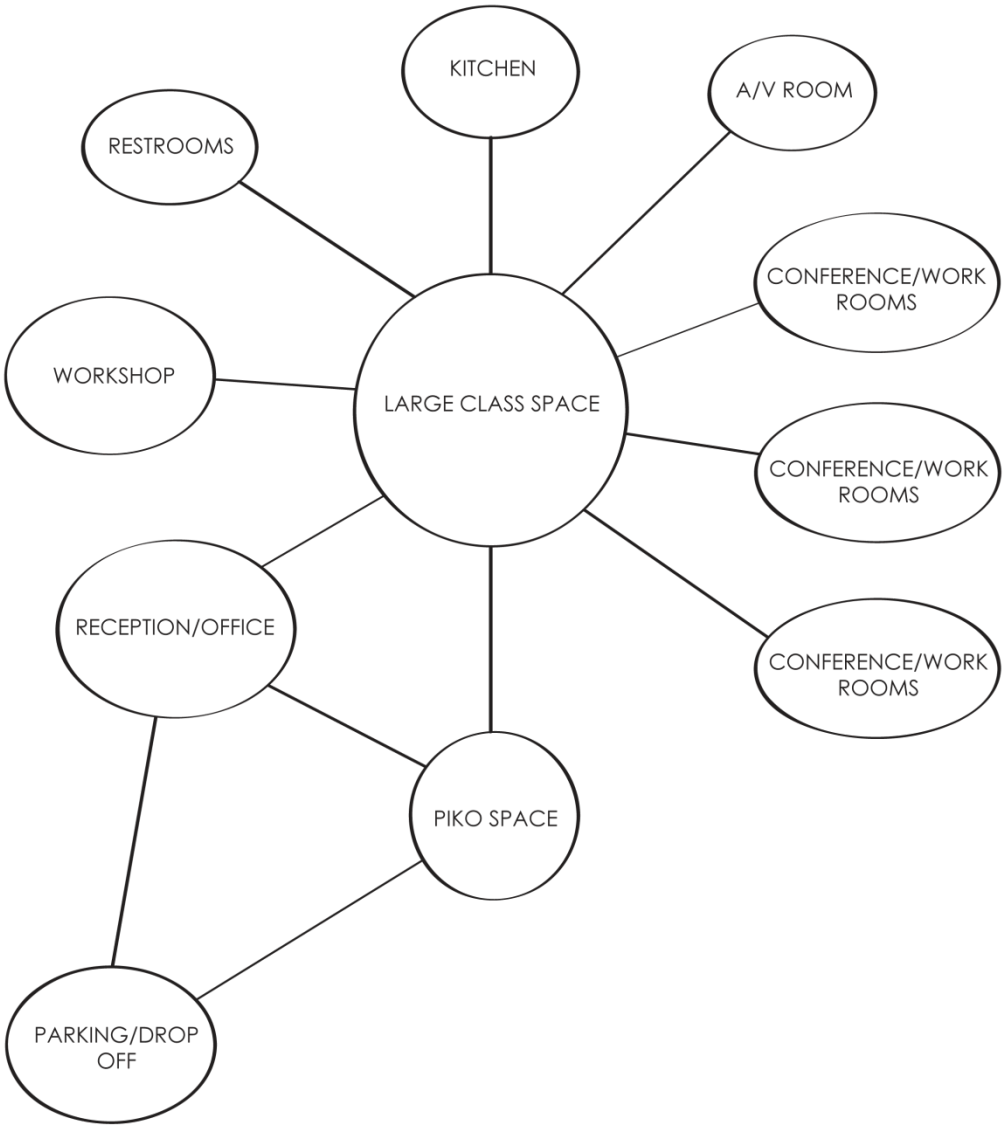


Figure 28: Programmatic Adjacency Diagram

7.2 Hoʻohuli ʻŌlelo Design Process

The Integrated Site Analysis introduced in Chapter 6 is an integral part of a greater design process that develops in this synthesis chapter. In Figure 29, the diagram breaks down the Hoʻohuli ʻŌlelo Design Process into an equation. The constant is the Hawaiian worldview, *kuanaʻike*, as it is communicated through the Hawaiian language, *ʻōlelo*. This general worldview is then narrowed down by the specific worldview of a particular site and a particular project. These variables are further filtered by the value system of the client as explained in the site analysis process in Chapter 6. The result, then, is the contextualized worldview, *kuanaʻike kikoʻī*, which is input into the Papa Hoʻohuli ʻŌlelo to be translated into design. This process is elaborated upon in Figure 30 and the subsequent Table 17: Kuanaʻike Kikoʻī - Hakipuʻu and Table 18: Kuanaʻike Kikoʻī - Lēʻahi.

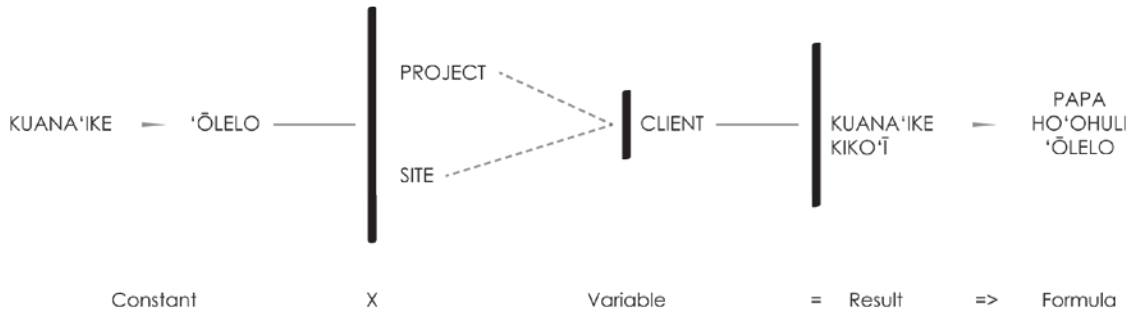


Figure 29: Hoʻohuli ʻŌlelo Design Process

KUANA‘IKE — ‘ŌLELO

PROJECT — CLIENT — SITE

KUANA‘IKE KIKO‘Ī — PAPA HO‘OHULI ‘ŌLELO

KUANA‘IKE: General

‘ŌLELO ELEMENT	INTERPRETATION
‘Ōlelo Traditions Inoa Mo‘o + ‘Ōlelo ‘Ōlelo No‘eau Welina	Significance of: ‘Āina Akua Mo‘okū‘auhau Kānaka ‘Aumākua Kūkulu
Directional Cues Locational Cues Personal Pronouns	Time Social Relationships Spatial Relationships
Welina Ka‘ina Kaona	Social Relationships Sequence | Order Multifaceted Meaning

Kuana‘ike: PROJECT Specific

‘ŌLELO ELEMENT	INTERPRETATION
Mo‘olelo Kuhikuhipu‘uone	Awareness of ‘Āina, Kai, and Lewa
Inoa Hale Kino	Functional Personification of building elements
Ho‘ona‘auao	Education; ‘daylight mind’

Kuana‘ike: SITE Specific (Refer to Hakipu‘u and Lē‘ahi Mind Maps)

‘ŌLELO ELEMENT	INTERPRETATION
Refer to Table 15: Hakipu‘u ‘Ōlelo Data Table	
Refer to Table 16: Lē‘ahi ‘Ōlelo Data Table	

Hakipu‘u Learning Center CLIENT Values

Aloha ‘Āina | Mālama ‘Āina
Subsistence
Makahiki
Ahupua‘a
Mauka | Makai
Lo‘i | Loko i‘a | Wa‘a

KUANA‘IKE KIKO‘Ī

‘ŌLELO ELEMENT	INTERPRETATION
Refer to Table 17: Kuana‘ike Kiko‘ī for Hakipu‘u	
Refer to Table 18: Kuana‘ike Kiko‘ī for Lē‘ahi	

Figure 30: Ho‘ohuli ‘Ōlelo Design Process

Table 17: Kuanaʻike Kikoʻī - Hakipuʻu

ʻŌLELO ELEMENT	INTERPRETATION
Inoa Makani Holopali	ʻĀina - Awareness of natural elements ʻto run along the cliffs'
Moʻolelo Kahaʻi	Subsistence | Makai | Waʻa Culture Significance of voyaging in Hakipuʻu ʻUlu - Canoe plant
Moʻolelo Kapuna	Subsistence | Mauka | Waʻa Culture ʻAwa - Canoe plant
Moʻolelo Kuhikuhipuʻuone	ʻĀina - Awareness of natural elements
Aʻo + Directional Cues Aʻo Mai Aʻo Aku	Mutuality between teaching and learning Learn Teach
Locative Nouns Mauka Makai	Ahupua ʻa | Mauka | Makai Inland Seaward
Personal Pronouns Kākou Mākou ʻOukou Lākou	Social and Spatial Distinctions All of us We (exclusive of you) You (exclusive of we, me) All of them
Welina	Social Protocol - Acknowledgement Moʻokūʻauhau | Kūkulu | ʻĀina
Kaʻina	Sequence/Order - as of the sunpath
Kaona Hoʻonaʻauao	Multifaceted Meaning Education; lit. daylight mind

Table 18: Kuanaʻike Kikoʻī - Lēʻahi

ʻŌLELO ELEMENT	INTERPRETATION
Moʻolelo Kalamakua	Subsistence | Makai Significance of surfing in Waikīkī Significance of taro farming in Waikīkī
ʻŌlelo Noʻeau #2654 Pili pono ka lā i Papaʻenaʻena.	ʻĀina - Awareness of natural elements The sun directs its heat at Papaʻenaʻena.
Moʻolelo Kuhikuhipuʻuone	ʻĀina - Awareness of natural elements
ʻŌlelo Noʻeau #203 ʻAʻohe pau ka ʻike i ka hālau hoʻokahi.	All knowledge is not taught in the same school.
Aʻo + Directional Cues Aʻo Mai Aʻo Aku	Mutuality between teaching and learning Learn Teach
Locative Nouns Mauka Makai	Ahupua ʻa | Mauka | Makai Inland Seaward
Personal Pronouns Kākou Mākou ʻOukou Lākou	Social and Spatial Distinctions All of us We (exclusive of you) You (exclusive of we, me) All of them
Welina	Social Protocol - Acknowledgement Moʻokūʻauhau | Kūkulu | ʻĀina
Kaʻina	Sequence/Order - as of the sunpath
Kaona Hoʻonaʻauao	Multifaceted Meaning Education; lit. daylight mind

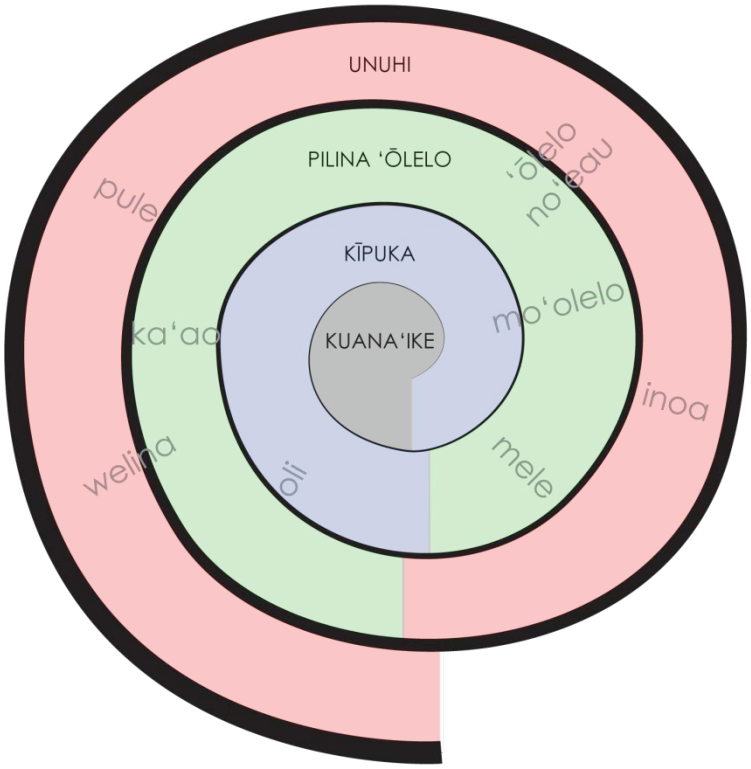


Figure 31: Piko Diagram Legend

Figure 31 indicates which layers of information each color is referencing in the Kuanaʻike tables, Table 17 and Table 18.

7.3 Translation to Conceptual Design

The conceptual phase of the design process is a critical phase in that it informs design decisions made throughout the remainder of the design process. The following synthesizes the four previous chapters into a conceptual design for HLC entirely informed by the Hawaiian language research presented in this thesis. How the elements of language informed the design is summarized in the diagrammatic plans and then explained in detail. The translation from the specific *ʻōlelo* elements used and their architectural applications in both conceptual designs are then catalogued in a Papa Hoʻohuli ʻŌlelo for each site.

7.3.1 Hakipuʻu

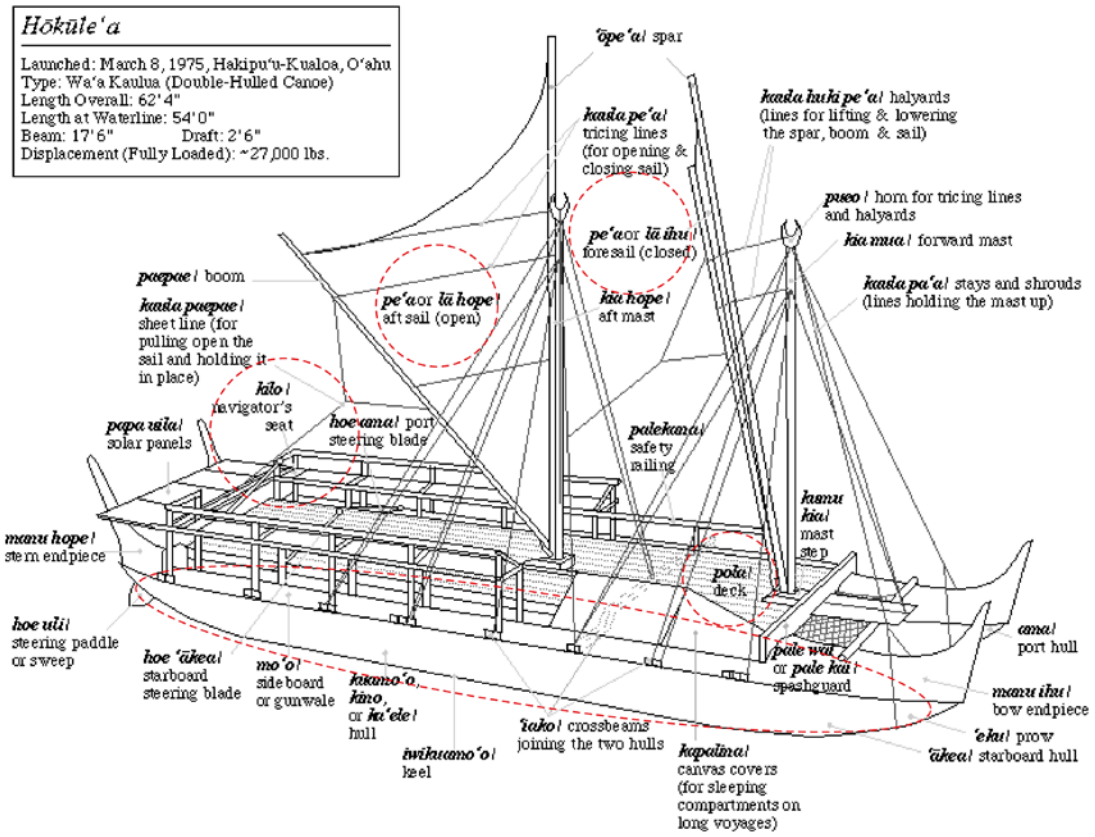


Figure 32: Hōkūleʻa Diagram Inspired Formal Concept[147]

The diagram above is a depiction of the double hulled seafaring canoe, Hōkūleʻa, whose history is deeply rooted at Hakipuʻu. She (Hōkūleʻa) is a replica of traditional seafaring canoes used by ancient Polynesians. Hōkūleʻa was built for the purpose of reviving voyaging traditions in Hawaiʻi. Her maiden voyage launched from the border between the *ahupuaʻa* of Kualoa and Hakipuʻu, due to this area's significance to the trditions of Hawaiian voyaging.[148] The *waʻa* specifically relates to the client's value system, as well as the history of Hakipuʻu as demonstrated through its *ʻōlelo* traditions. It therefore serves as a formal inspiration for the conceptual design of the physical building at the Hakipuʻu site. This is illustrated by the following diagrammatic plans.

[147] Herb Kawainui Kāne, "In Search of the Ancient Polynesian Voyaging Canoe (1998)," Hawaiian Voyaging Traditions, http://pvs.kcc.hawaii.edu/ike/kalai_waa/kane_search_voyaging_canoe.html, accessed May 2013.
[148] Kenneth P. Emory, "Launching Hōkūleʻa," http://pvs.kcc.hawaii.edu/ike/kalai_waa/launching_hokulea.html, accessed May 2013.

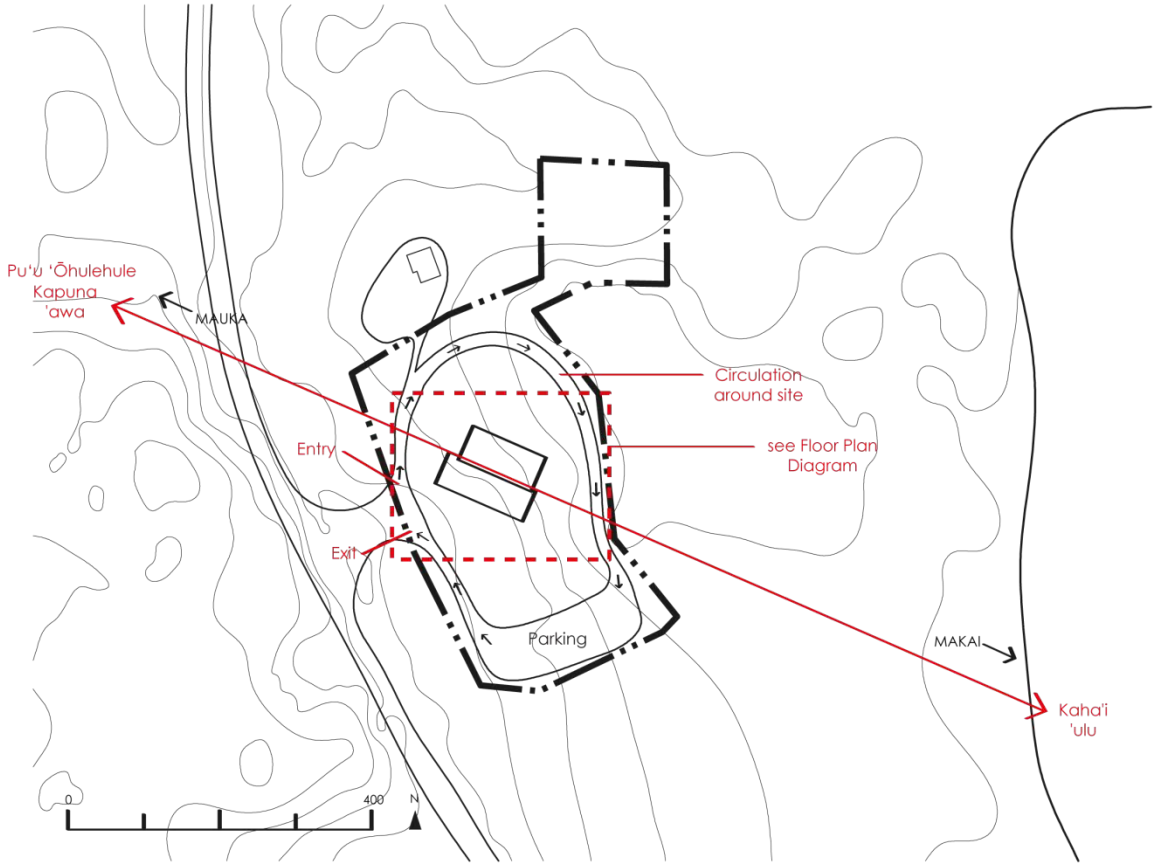


Figure 33: Hakipu'u Site Plan Diagram

The diagrammatic site plan above illustrates how the design specifically responds to the features of the site. The orientation of the building is on the *mauka-makai* axis that addresses the client's value of understanding elements of *the ahupua'a* system. Simultaneously, this axis orients the building and the users attention toward the *mo'olelo* of Kaha'i and the introduction of *'ulu* in the *makai* direction and the *mo'olelo* of Kapuna and the intoxicating *'awa* in the *mauka* direction. The landscaping of the site also responds to the content in these *mo'olelo* with *'ulu* trees planted on the *makai* side of the site and *'awa* plants planted on the *mauka* side of the site.

Another language element that is translated into this site plan is the concept of *welina*. The road into the site circulates around the entire site before arriving at the final destination point. This is an abstraction of *welina* as an introductory address of origins as performed in speeches or presentations. The road creates an opportunity to physically address the entirety of the site, *mai ka lā hiki a ka lā kau* 'from where the sun rises to the where the sun sets' before parking and entering the actual building.

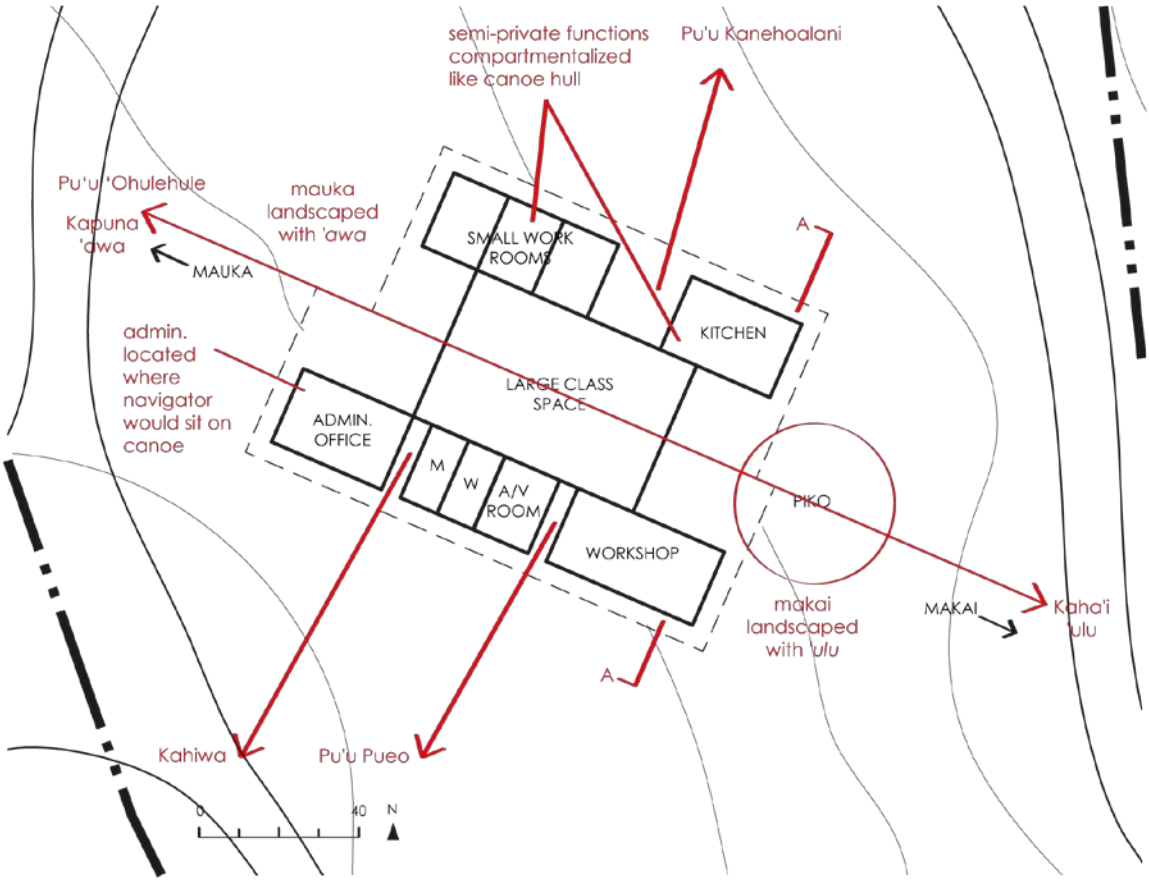


Figure 34: Hakipu'u Floor Plan Diagram

The diagrammatic floor plan demonstrates how the form of the *wa'a* and its functional organization are abstracted to meet the programmatic requirements of the school. The central space in the building serves as the large open class space. As the public work space it resembles that of the deck on the canoe. The two hulls at either side of the deck function for more private and individualized activity such as sleeping. This is translated in the design at either side of the large class space where the semi-private functions are compartmentalized into individual spaces, including the smaller classroom spaces, kitchen, workshop, audio/visual room, and administration office. The administration space is located to the rear end of the building, as its primary orientation is toward the *makai* direction. This arrangement is based on the location of the navigator's seat at the rear end of the *wa'a*.

The compartmentalized spaces at both sides of the building are physically separated creating perforations which are aligned with two of the boundary defining peaks of Hakipu'u *ahupua'a* as well as a significant stone called Kahiwa. Translating to the favorite or beloved one, Kahiwa is considered

to be a guardian stone. [149] It also sits on the boundary line of the *ahupua'a*. These spaces serve as breezeway entrances and exits to the building and an outdoor eating space, each with direct views to these important site features.

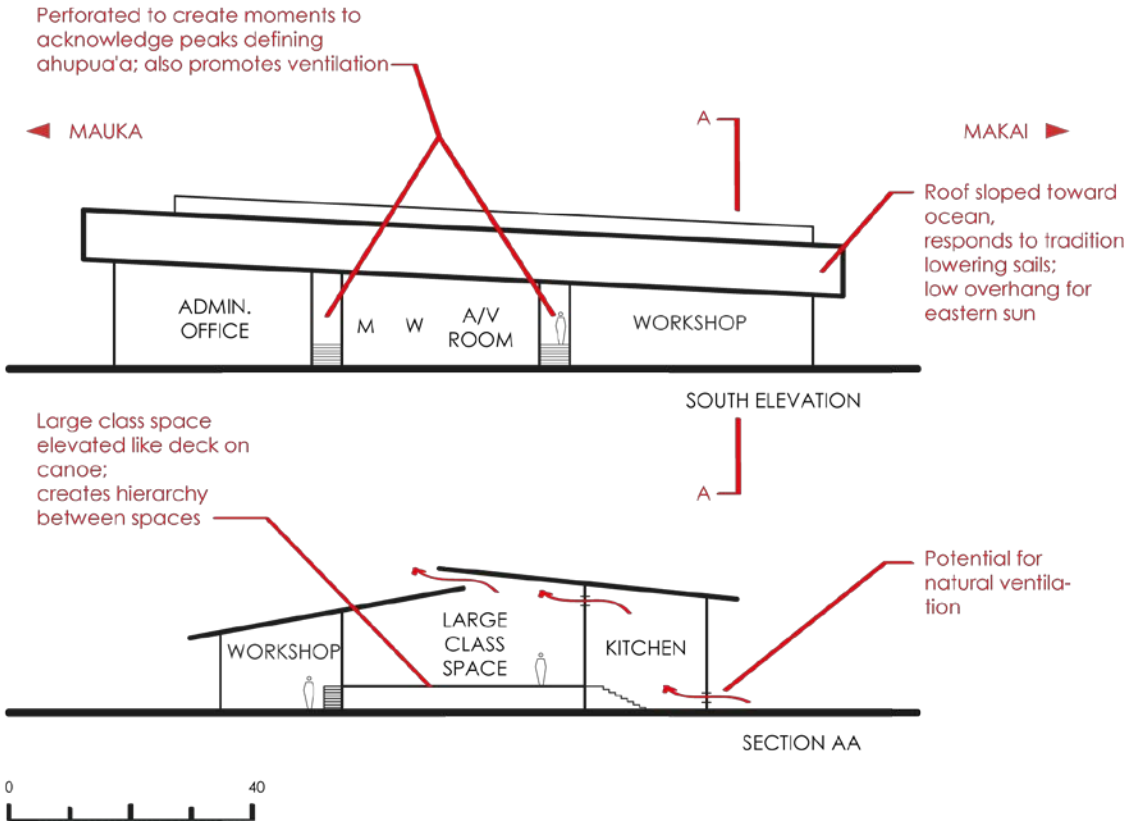


Figure 35: Hakipu'u Conceptual Elevation and Section

The roof forms are depicted in the elevation of the building. Sloped in the *makai* direction, the design of the roof responds to the tradition in the story of Kaha'i demonstrating the lowering of the canoe sails as a statement of reverence.

As shown in the transverse section diagram, the floor of the class space is elevated creating greater distinction between the public working space and the semi-private spaces. This also references the deck of the canoe which is also elevated above the hulls.

How the design responds to the existing physical conditions is also depicted in the elevations. The sloping of the roofs also conveniently provides a lower overhang protecting the east facing façade

[149] Liko Hoe, conversation with author, Hakipu'u, March 2011.

from the morning sun. As the sun passes over the building later in the day it goes behind the mountains which protect the west facing façade from the afternoon sun. With the northern roof overlapping the southern roof, there is potential for naturally ventilating the interior spaces. The prevailing winds hit the north face of the building and can force the hotter air up and out through the space between the two roof forms.

Information from each of the layers in Hawaiian language contributes to the design of the school. Many of the design decisions are derived from the *unuhi* layer. It is the content of the significant *moʻolelo* specific to Hakipuʻu which inspired the main form and orientation of the building.

As locative terms in the *pilina ʻōlelo* layer, *mauka* and *makai* define the strong axis upon which the building is oriented. This also responds to the Hawaiian value of understanding one's location in space as informed by the land.

Language elements from the *pilina ʻōlelo* layer also inform the separation of spaces according to function as depicted in the diagrammatic floor plan. The pronouns *kākou*, *mākou*, *ʻoukou* and *lākou* are evident in the spatial organization of the school. Collectively, all the spaces within the building represent the all-inclusive pronoun, *kākou*, meaning all of us together. The more exclusive, *mākou* meaning all of us, not including you, appears in the large class space which is distinct from the individualized spaces. This distinction is then a translation of the *ʻoukou* pronoun meaning, you all, exclusive of us. The *piko* space defined by landscaped *ʻulu* trees, is outside of and distinct from the building, suggesting a *lākou* type space, for until one enters the *kākou* space, both physically and socially, he is an outsider. This concept is reminiscent of the *marae* space located outside the Māori *wharenui.* It should be noted that there may be varied interpretations of which pronoun is represented by a specific space. More importantly, however, is that the collective implication of these pronouns can be translated spatially. The spatial organization of the school is separated and distinguished according to function and social interaction.

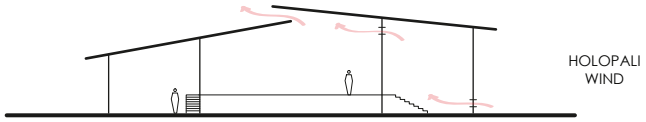
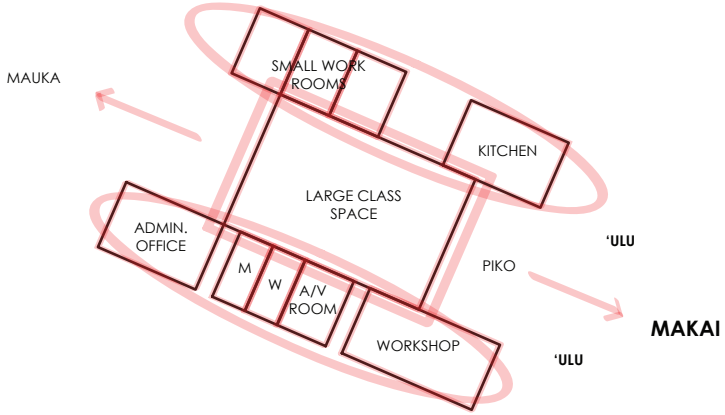
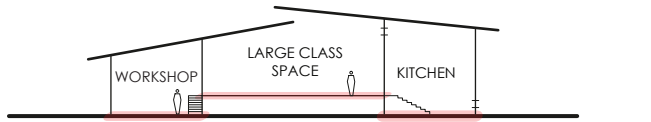
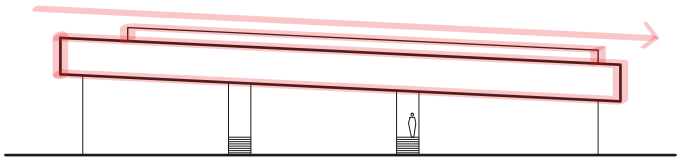
The *kīpuka* layer lends the protocol of *welina* to the design of the site plan in the vehicular circulation around the site. The *kaʻina* concept is also expressed in the orientation of the building on the east-west axis, acknowledging the path of the sun. The overhang of the roof at the east face is lowered to mitigate direct morning sunlight and heat gain. The west face is protected from the afternoon sun by

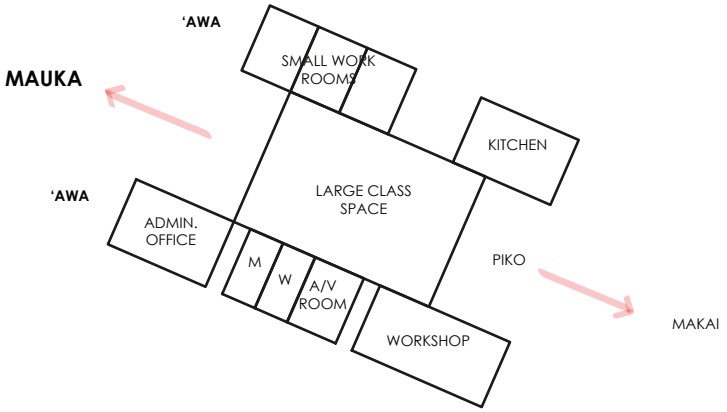
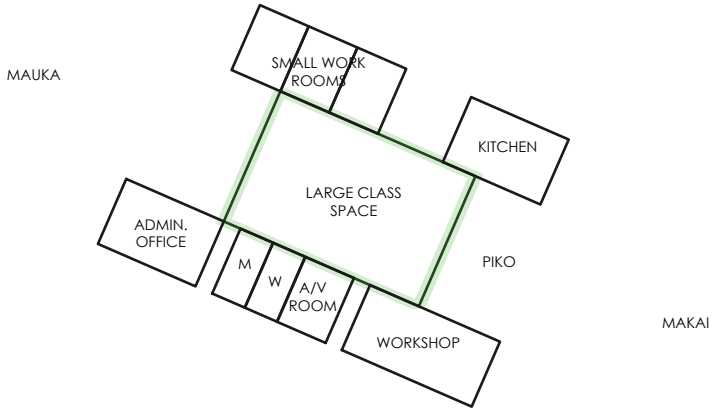
the peak of Puʻu ʻŌhulehule. The design also responds to the *kaona* of *hoʻonaʻauao* in the discontinuous roof system which allows for natural and indirect daylighting.

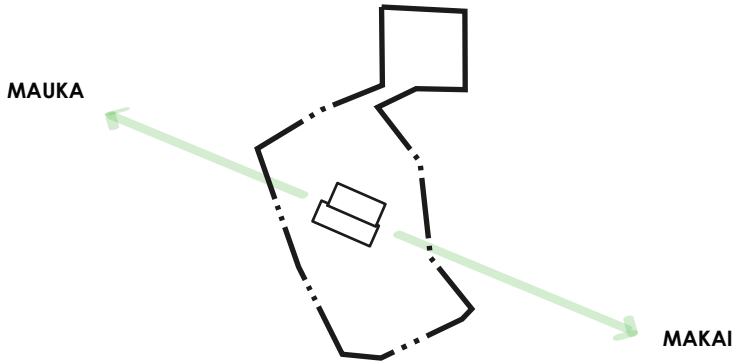
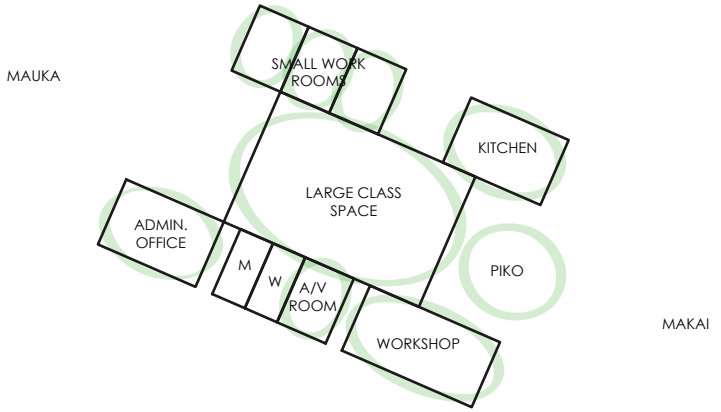
The *kīpuka* layer also contributes to this design in the expression of the *waʻa*. The abstracted form and organization of the *waʻa* as translated into the form and organization of the school may not be recognizable to all who experience this building. Those who are familiar with the history and *moʻolelo* which inform this design are more perceptive to the expression of this concept.

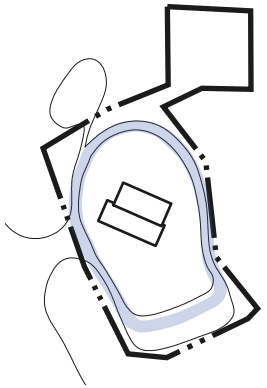
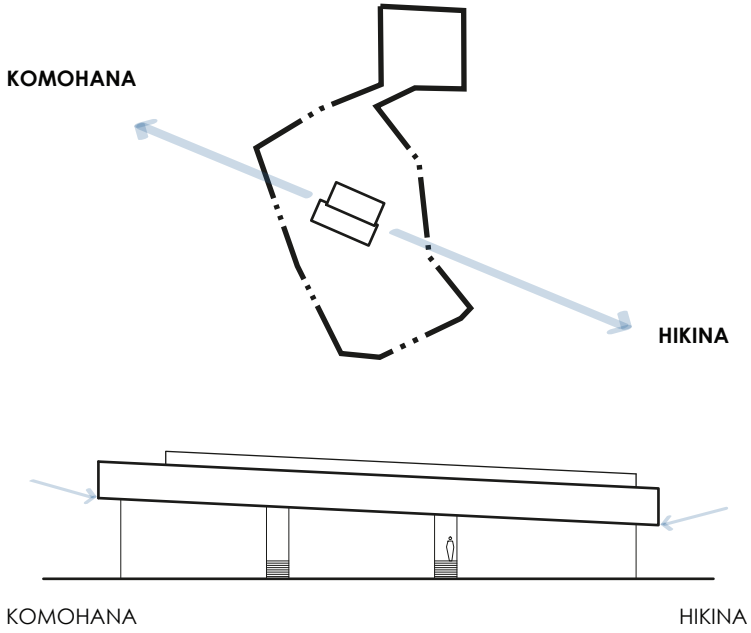
All of the language elements that inform this Hakipuʻu conceptual design and how they are translated into design applications are catalogued in the following Papa Hoʻohuli ʻŌlelo. In the same way it does for the Māori *wharenui* and Māori language in the three part methodology table in Chapter 1, this table organizes and identifies the relationship between Hawaiian language and this design iteration for Hakipuʻu Learning center.

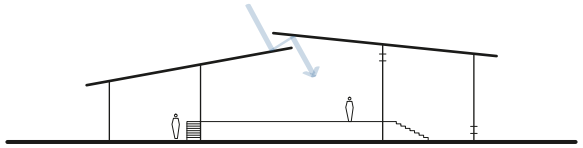
Table 19: PAPA HOʻOHULI ʻŌLELO: Hakipuʻu

ʻŌLELO ELEMENT	INTERPRETATION	DESIGN TRANSLATION
Inoa Makani Holopali	ʻĀina - Awareness of natural elements ʻto run along the cliffs'	
Moʻolelo Kahaʻi	Subsistence | Makai | Waʻa Culture Significance of voyaging in Hakipuʻu ʻUlu - Canoe plant	  

Mo‘olelo Kapuna	Subsistence | Mauka | Wa‘a Culture ‘Awa - Canoe plant	
A‘o + Directional Cues A‘o Mai A‘o Aku	Mutuality between teaching and learning Learn Teach	

Locative Nouns Mauka Makai	Ahupua ʻa | Mauka | Makai	
Personal Pronouns Kākou Mākou ʻOukou Lākou	Social and Spatial Distinctions All of us We (exclusive of you) You (exclusive of we, me) All of them	

Welina	Social Protocol - Acknowledgement/Greeting Mo‘okū‘auhau | Kūkulu | ‘Āina	
Ka‘ina	Sequence/Order - as of the sunpath	

Kaona Ho‘ona‘auao	Multifaceted Meaning Education; lit. daylight mind	

7.3.2 Lēʻahi

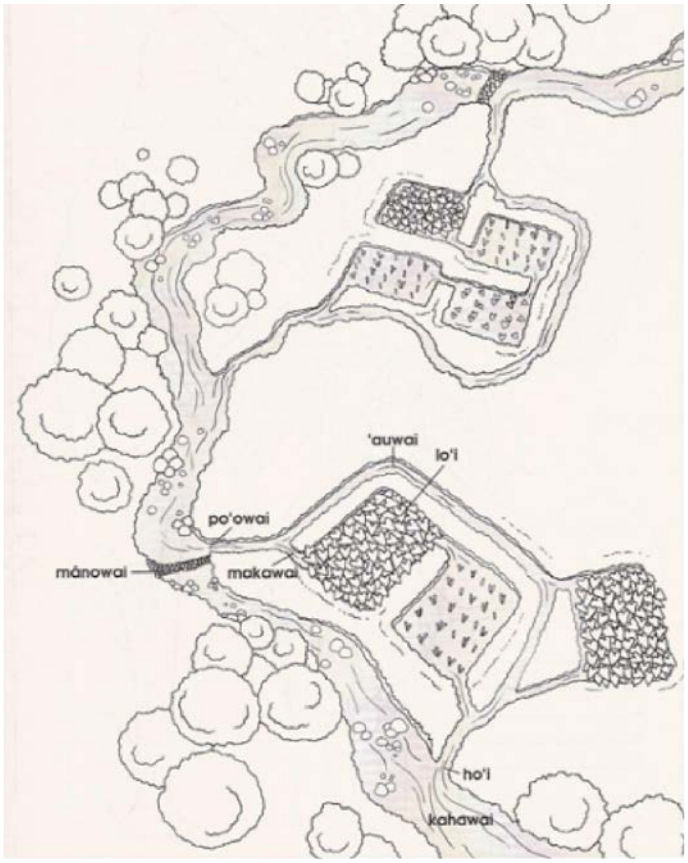


Figure 36: Loʻi System Diagram as Formal Concept[150]

The components of the *loʻi* system inform the conceptual design for a school facility and the Lēʻahi site. Figure 36 is a diagram illustrating the main components of an irrigated *loʻi* system. The *kahawai*, or stream, is the main water source that feeds the *loʻi*. The *mānowai* is the obstruction of boulders in the stream which slows the flow of the stream and redirects the water to flow through the *poʻowai*, the first channel through which the water enters to reach the loʻi. The secondary channels are the *makawai*, which are the smaller channels which connect the main *ʻauwai,* or irrigation ditch, to the *loʻi*, which are the flooded terraces where the *kalo*, or taro is cultivated. The *makawai* also connect individual *loʻi* to each other so the water has a continuous pathway until it exits the *loʻi* through the *hoʻi* 'lit. to return' and returns to the *kahawai*.[151] This system represents the chief Kalamakua's contribution to the history of food production in Waikīkī.

[150] "Parts of the Loʻi," http://welinamanoa.org/ka-papa-loi-o-kanewai-2/parts-of-the-loi/, accessed May 2013.
[151] Lākea Trask-Batti, phone conversation with author, May 2013.

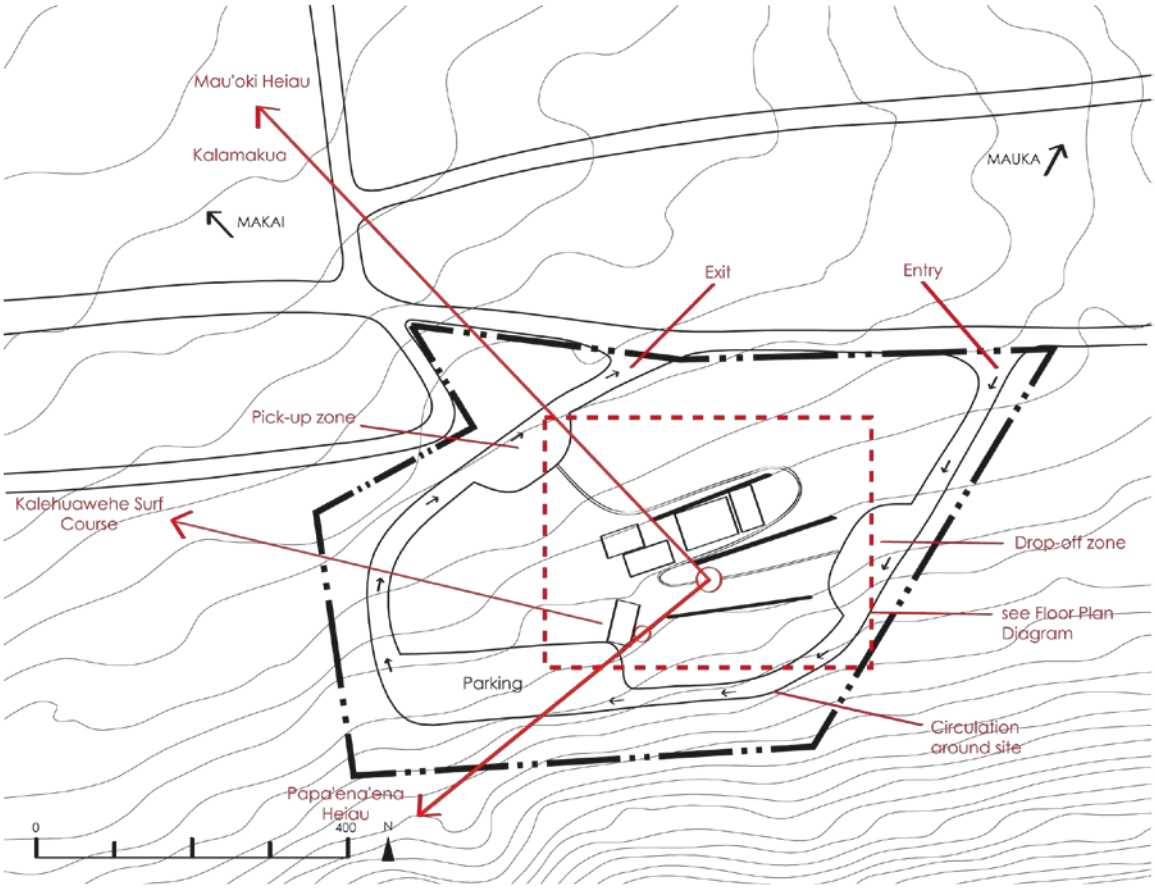


Figure 37: Lēʻahi Site Plan Diagram

The diagrammatic site plan in Figure 37 illustrates how the *moʻolelo* of chief Kalamakua, known for his surfing prowess and his expert taro farming, informs the arrangement of programmatic spaces on the site as well as their orientations.

From the center of the site, which functions as the *piko* space specified by the client, there is an alignment to the Mauʻoki *heiau*, which was located in the vicinity of Mōʻiliʻili.[152] This heiau speaks to the *moʻolelo* of Kalamakua as it is where his grandson Kihaapiʻilani was raised by *kahuna*.[153] Mauʻoki *heiau* was deidicated to Lono, god of harvest, another element connecting the *ʻōlelo* traditions of this site to the client's value of subsistence.

Papaʻenaʻena *heiau*, was located on Lēʻahi, southwest of the site which functioned as a surf *heiau kahuna* would scan the surf conditions at Kalehuawehe. Both places are addressed in the site plan as the path from the *piko* to the entrance of the administration building is directly aligned toward

[152] Sterling and Summmers, *Sites of Oʻahu*, 279.
[153] Kanahele, *Waikīkī*, 60.

Papa‘ena‘ena. The administration space, representative of the overseers of the school is located at the highest and best vantage point of the site with the building oriented towards the storied surf course, Kalehuawehe.

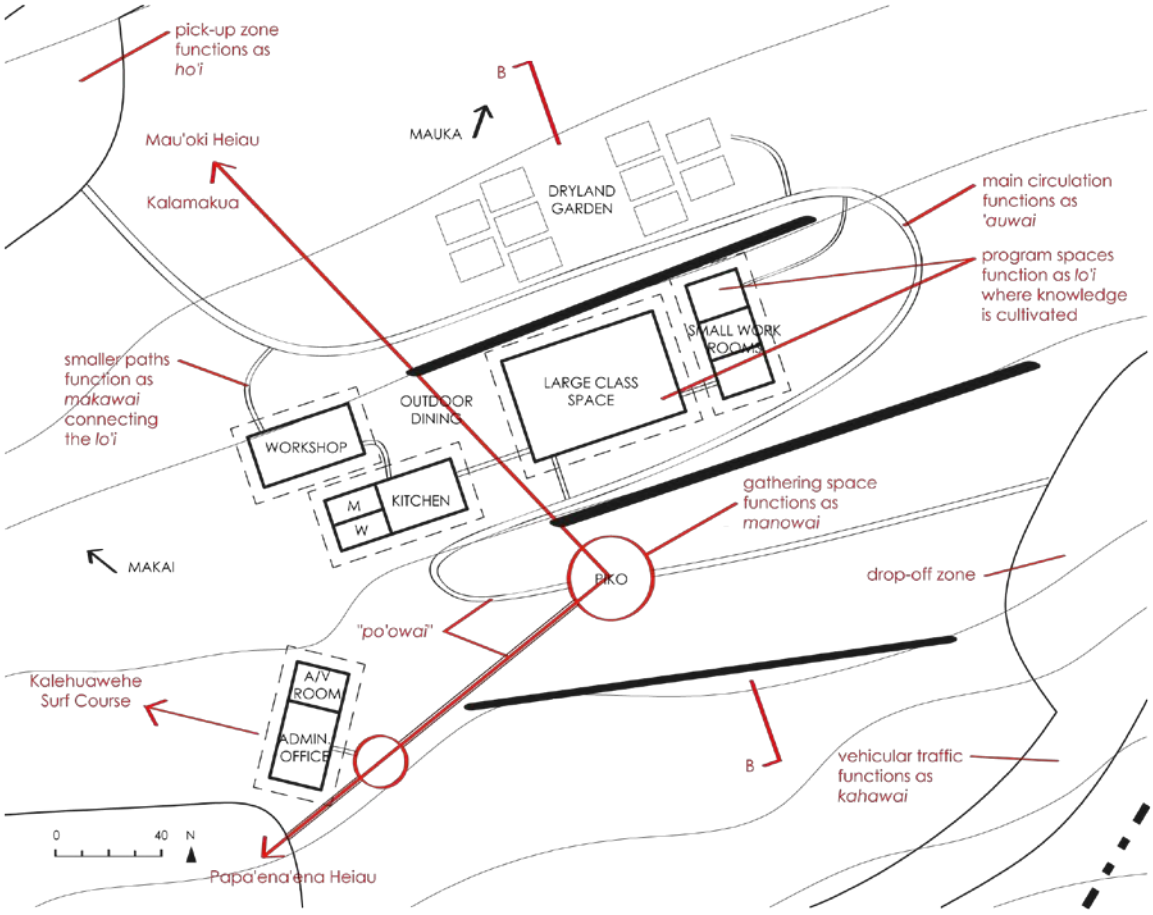


Figure 38: Hakipu‘u Floor Plan Diagram

The components of the *lo‘i* system appear in the diagrammatic floor plan above as the water circulation is translated into circulation of people in the design and the *lo‘i* where taro is cultivated are translated as the separated programmatic spaces where knowledge is cultivated. The road for vehicular traffic into and out of the site, functions like the *kahawai* circulating around the site. The student drop off point leads to the *piko* space. The *piko* space functions as a unifying space where the school gathers for morning protocol and redirects the collective energy towards facilitating a harmonious learning environment. Similarly, in the *lo‘i* system, the *mānowai* slows the speed of the water and redirects it to feed the *lo‘i*. The pathways from the *piko* leading to the individual program spaces function like the *po‘owai*. They lead to the *lo‘i* by way of the *‘auwai* represented by the main

pedestrian pathway that winds throughout the campus directing students to their appropriate destinations. These separated programmatic spaces house much of where the learning and teaching occur in the school. Each program space is connected by a smaller pathway representing the *makawai*. All the pathways, in some way reconnect finally to the main pedestrian path which ends at the pickup point near the dry land garden at the front of the site. Here is where the students exit the school and return to the main circulation path from which they entered.

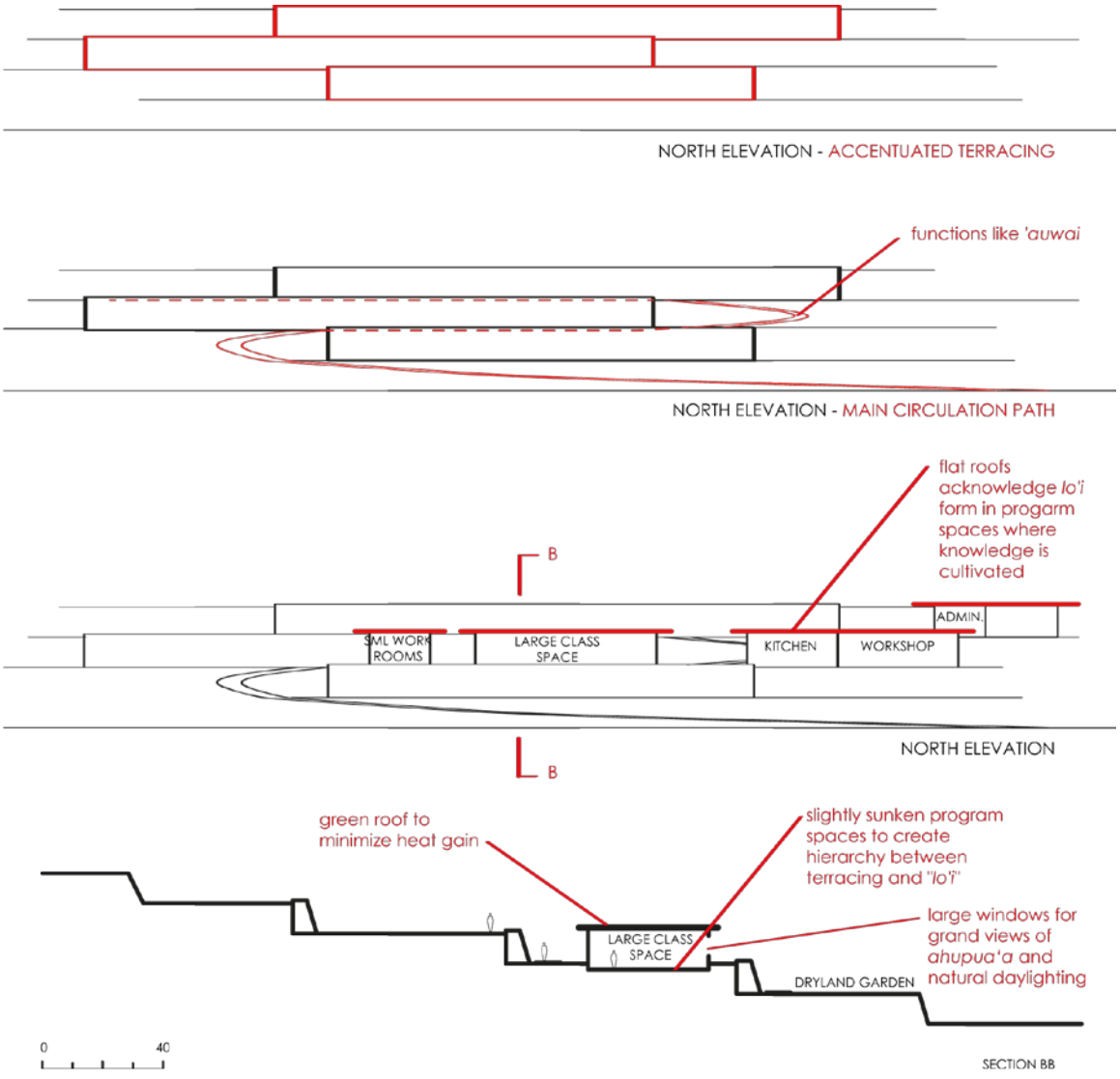


Figure 39: Lēʻahi Conceptual Elevation and Section

The diagrammed north elevation in Figure 39 illustrates how the different design elements occur on the site and relate to each other. The previously developed site had existing terracing on it. Three of these terraces are accentuated and reinforced in the design by a stone wall. The main circulation path winds through these walls, passes the individual program spaces and down the terraces ending at the bottom platform where the students either arrive at the garden or return home when they get picked up at the pickup point.

In the conceptual section, the slight sinking of the large classroom space is visible and alludes to the depressed *loʻi* one typically climbs down into to cultivate the taro. This gesture specifically distinguishes between the outside and inside spaces as it occurs in all of the buildings of the facility.

The section suggests green roofs for the flat roofs whose forms are derived from the general flat form of the *loʻi*. As flat roofs are exposed to the sun for longer throughout the day, green roofs help to mitigate the solar load on the building and maintain the comfort level inside. This is in direct response to the *ʻōlelo noʻeau* which references Papaʻenaʻena, *Pili pono ka lā i Papaʻenaʻena,* which translates to, the sun directs its heat at Papaʻenaʻena, with *ʻenaʻena* also meaning red hot.[154] In addition to being oriented on an axis less subjected to direct sunlight throughout the day, large openings on the north face of the building allow for natural daylighting within the spaces.

As in the design for the Hakipuʻu site, information from each of the layers in Hawaiian language contributes to the design of the school. The *unuhi* layer lends the content of the significant *moʻolelo* specific to Lēʻahi, ultimately informing the main circulation throughout the site.

The locative terms in the *pilina ʻōlelo* layer, *mauka* and *makai* are also acknowledged in the vantage point of the site which allows for panoramic views of the Wakīkī *ahupuaʻa.*

Kākou, *mākou*, *ʻoukou* and *lākou* are again, evident in the spatial organization of the school. In this case, the *kākou* space includes the spaces on the lower terrace as most of the educational activity occurs there. Like the Hakipuʻu design, the *mākou* space appears in the large class space and the *ʻoukou* occurs in the smaller individualized work rooms. The *lākou* space is expressed in the distinctively separate *piko* space which is experienced prior to entering any of the other spaces.

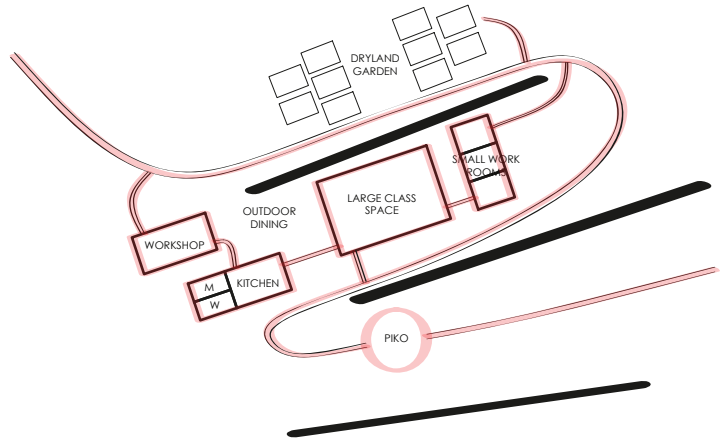
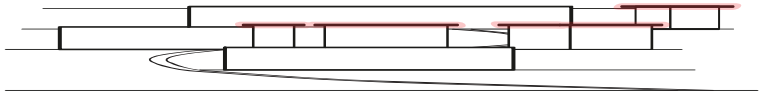
[154] Pukui, *ʻŌlelo Noʻeau, 291.*

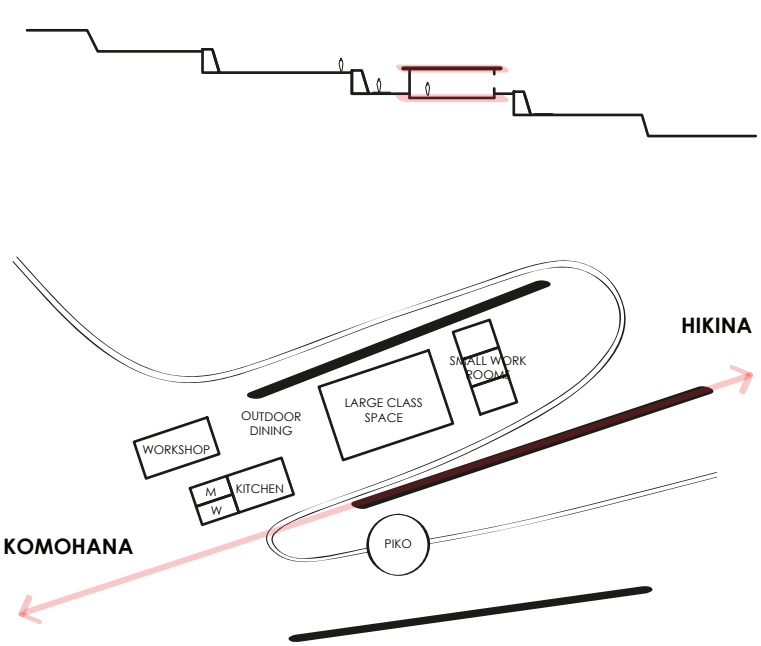
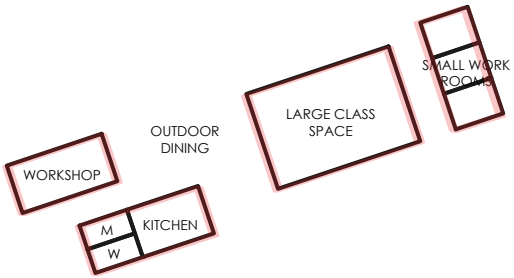
From the *kīpuka* layer, the protocol of *welina* occurs in the vehicular traffic circulation as it circumnavigates the campus. The *kaʻina* concept is also expressed in acknowledgment of the sunpath. This design responds to the *kaona* of *hoʻonaʻauao* using natural daylighting, as in the Hakipuʻu design but with the large openings on the north face instead of the roof system.

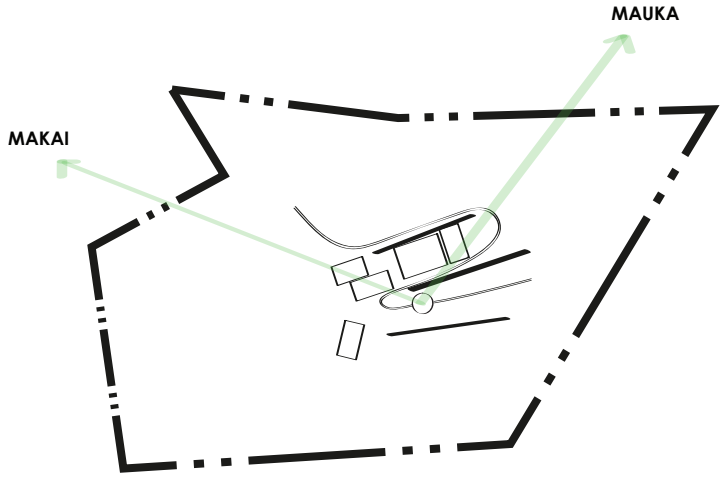
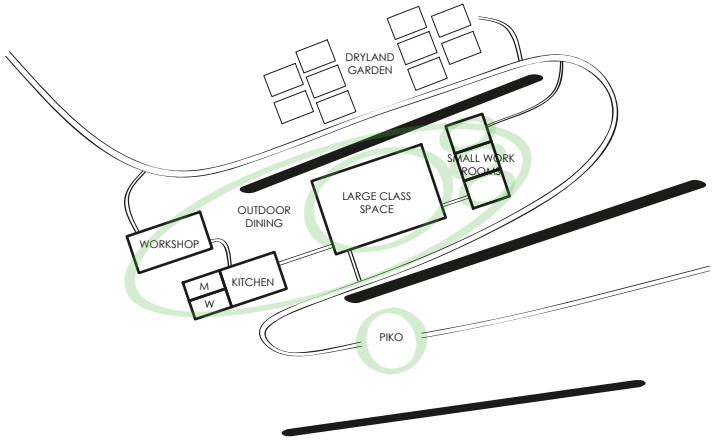
Kaona is also evident in the expression of the *loʻi*. The design of the circulation both vehicular and pedestrian, are entirely informed by the irrigation system of the *loʻi*. Those who are familiar with the *loʻi* system will be more perceptive to the communication of this concept.

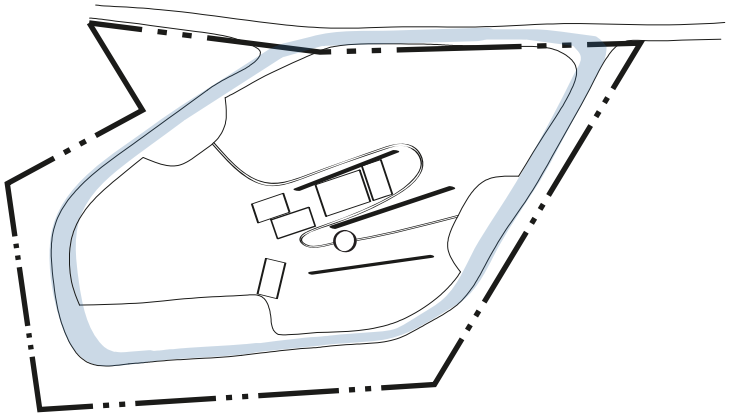
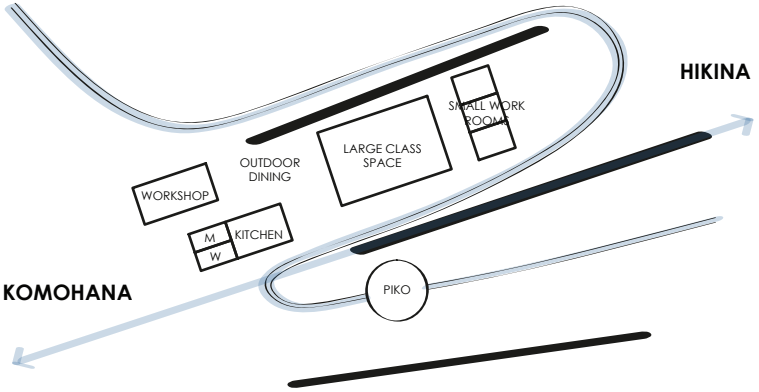
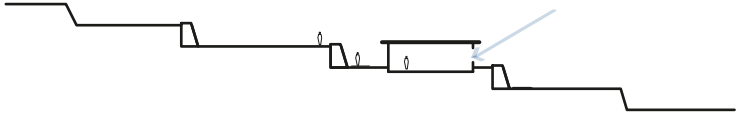
All of the language elements of the Lēʻahi site and how they are translated into design applications are catalogued in the following Papa Hoʻohuli ʻŌlelo.

Table 20: PAPA HOʻOHULI ʻŌLELO: Lēʻahi

ʻŌLELO ELEMENT	INTERPRETATION	DESIGN TRANSLATION
Moʻolelo Kalamakua	Subsistence | Makai Significance of surfing in Waikīkī Significance of taro farming in Waikīkī	  

ʻŌlelo Noʻeau #2654 Pili pono ka lā i Papaʻenaʻena.	ʻĀina - Awareness of natural elements The sun directs its heat at Papaʻenaʻena.	
ʻŌlelo Noʻeau #203 ʻAʻohe pau ka ʻike i ka hālau hoʻokahi.	All knowledge is not taught in the same school.	

Locative Nouns Mauka Makai	Ahupua ʻa | Mauka | Makai	
Personal Pronouns Kākou Mākou ʻOukou Lākou	Social and Spatial Distinctions All of us We (exclusive of you) You (exclusive of we, me) All of them	

Welina	Social Protocol - Acknowledgement Moʻokūʻauhau | Kūkulu | ʻĀina	
Kaʻina	Sequence/Order - as of the sunpath	
Kaona Hoʻonaʻauao	Multifaceted Meaning Education; lit. daylight mind	

7.4 Conclusion

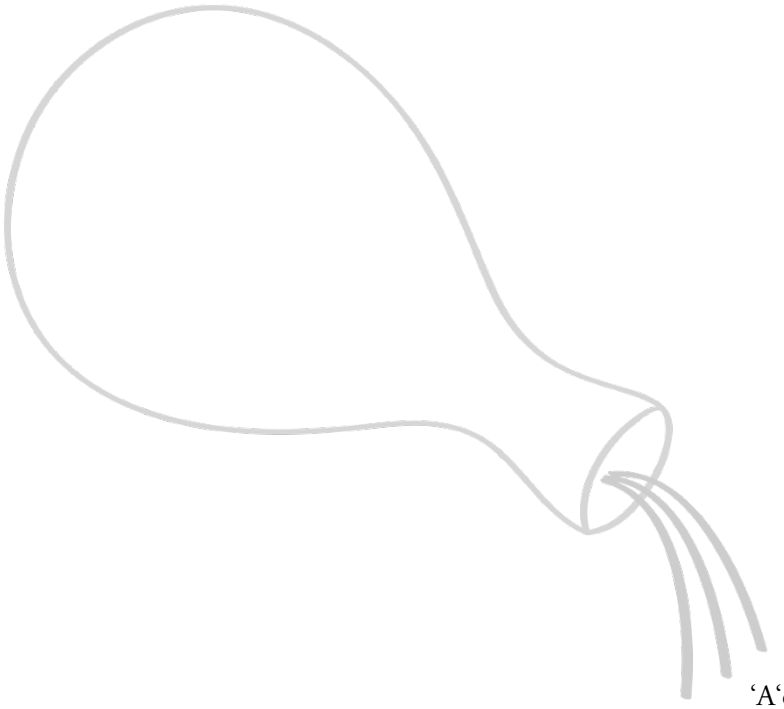
By responding to the *ʻōlelo* elements that characterize the two sites, elements which express the histories of these places, the *moʻokūʻauhau* 'genealogy' of each place is inherently part of the design. The significance of *moʻokūʻauhau* and revering *wā kahiko* 'times of old,' is an important concept in Hawaiian thinking as they are the source of the knowledge that continues to guide us today.

In conjunction with language informing the architectural gestures of each design, the physical features of either site were also considered in addressing the client's values. Both designs maximize visibility of the *ahupuaʻa* from the mountain to the sea. For the Hakipuʻu site, this is done by orienting the building on a *mauka-makai* axis maximizing visibility of the *ahupuaʻa* from the main programmatic space. It also acknowledges the boundaries of Hakipuʻu *ahupuaʻa* by perforating the compartmentalized function spaces in alignment with the mountain peaks. At the Lēʻahi site, the orientation of the buildings take full advantage of the panoramic view of Waikīkī *ahupuaʻa*, that the Lēahi hillside boasts. These formal decisions serve to emphasize awareness of place and specifically, the *ahupuaʻa* as it exists at the particular site.

Both designs specifically respond to the features of the site as expressed in the *ʻōlelo* traditions which reference the place. The client, their value system and programmatic requirements were consistent at both sites, however, the uniqueness of the two designs communicates the unique features that characterize a specific place. Approaching a design problem from the perspective of language yields limitless potential for design solutions that are thoroughly informed.

The resulting design in this synthesis chapter addressed only the conceptual phase of design but a strong cohesive design derives from a well-informed concept that continues to direct design decisions throughout the entire design process. Much of the concepts that informed the design came from the *unuhi* layer. The concepts that exist in this layer are generally maintained in both Hawaiian and English, and are most likely translatable in other languages as well. These concepts are the most accessible and are also more universal ideas which are more easily adaptable at the conceptual phase of design. While some elements of the *pilina ʻōlelo* layer appear in the designs, the concepts maintained at this level are of a more specific nature as they address ideas of social interaction. Ideas such as these can be more thoroughly addressed further along in the design process. An experiment with this approach through to the design development phase would allow for more engagement of the different

layers of information in the Hawaiian language. Nonetheless, merely implementing the design process that has developed in this thesis at the conceptual phase of design has proven to inform very specific, place-responsive design decisions.



Conclusion

ʻAʻohe pau ka ʻike i ka hālau hoʻokāhi

All knowledge is not taught in the same school.

One can learn from many sources.

-ʻŌlelo Noʻeau #203[155]

[155] Pukui, *ʻŌlelo Noʻeau*, 24.

Contribution to the field

In response to the current sense of place communicated through architecture in Hawai‘i, this thesis seeks to establish a new approach in design. It contributes to the architecture field by proposing a method for understanding native Hawaiian worldview through lens of the Hawaiian language and then translating it into place responsive design. The object of this thesis is to stimulate a reevaluation of what designers allow to influence their work and how. The components of this research examine the relationship that exists between architecture and language and more specifically, the inherent implications of place in the Hawaiian language that can inform good architecture in Hawai‘i.

Research Statement

An initial assessment of the sense of place achieved in 3 existing examples of Hawaiian school design illustrated the common practice of interpreting and incorporating Hawaiian culture into contemporary design. While the designs are each able to communicate different elements unique to Hawai‘i, they lack inventiveness in a unifying concept. This thesis argues that the Hawaiian language communicates very specific information that can and should inform unique and cohesive design solutions that respond not only to Hawai‘i but even more specifically to the project site.

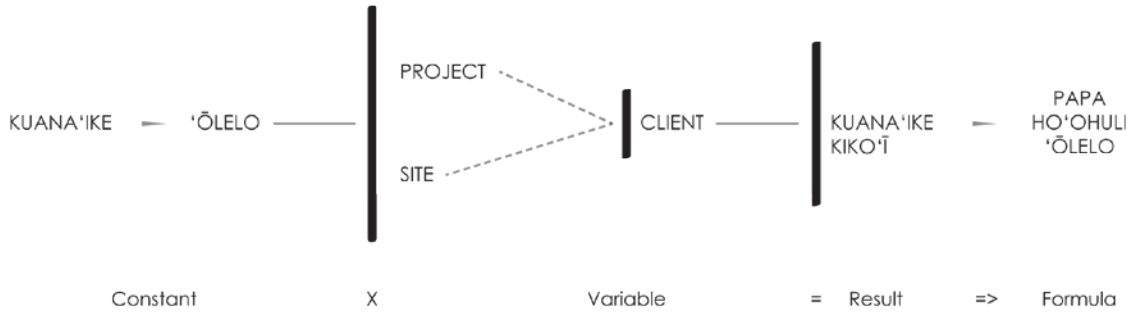
As a people closely related to Hawaiians, the Māori offer an appropriate model for evaluating the relationship between language and architecture in Aotearoa, where a sense of place is maintained through the perpetuation of tradition. A short study of *te reo Māori* ‘the Māori language’ and the *wharenui* ‘traditional Māori meetinghouse’ which still has relevant applications today, provided a basis for observing how language elements appear in the traditional architecture. The observations in this study inspired a three-part methodology for organizing and explaining how language is translated into architecture catalogued in a table entitled Papa Ho‘ohuli ‘Ōlelo.

‘*Ōlelo Hawai‘i* ‘Hawaiian language’ offers a myriad of concepts that communicates the knowledge from within the Hawaiians proverbial *ipu;* how they thought about, organized and understood their environment. An examination of the Hawaiian language yielded a method for organizing the different layers of information implicit in the language.

The synthesis of this research implements the methods that developed in this thesis in two conceptual designs for Hakipu‘u Learning Center. It asserts that the language traditions specific to Hawai‘i, and the individual places within it, can effectively inform place responsive design from its conception.

Main Findings

The main findings of this thesis are the new methods which organize and communicate the information inherent in the Hawaiian language. These methods make the concepts of language examined in this research accessible to designers. They also serve as practical tools for designing for a specific place using the language of that place. The Hoʻohuli ʻŌlelo Design Process that manifests in the synthesis of the research, is one that is fundamentally informed by language. It is based on a theoretical equation that essentially can be implemented not only in Hawaiʻi but all over the world.



This process implements a formula for transforming worldview as communicated through language into design articulations. The formula inputs the contextualized results from the theoretical equation into the Papa Hoʻohuli ʻŌlelo to be translated into design gestures as depicted Table 21.

Table 21: Papa Hoʻohuli ʻŌlelo - Layers in ʻŌlelo

ʻŌlelo Element	Interpretation	Design Translation
Concepts extracted from the ***unuhi*** layer	Translation, preserved content of oral traditions Implications based on content, context (site specific, main layer in the ʻōlelo site analysis for this project)	Overall formal concept, informs design decisions/gestures
Concepts extracted from the ***pilina ʻōlelo*** layer	Organization, arrangement of language Spatial and social implications (personal scale)	Organization, spatial arrangement, informs social interaction according to programmatic requirements
Concepts extracted from the ***kīpuka*** layer	Pragmatics, Delivery, performance Implications (intuitive)	Formal gestures express meaning recognizable to some, not necessarily all

Table 21 incorporates the system of three layers that organizes the information in the Hawaiian language, developed in Chapter 4, into the Papa Hoʻohuli ʻŌlelo which establishes and organizes the relationship between the implications of language and their architectural applications.

While each layer informed the design solution to a certain degree, concepts from the *unuhi* layer had substantially more influence. As the most accessible layer of the three, this also translates to the way it informs the design. The concepts in this layer which manifest in design are more easily perceivable than the concepts from the other two layers, and are generally more applicable at the conceptual phase of design. The concepts which informed the major design gestures at both the Hakipuʻu and Lēʻahi sites were ones generally preserved in English. The tradition of *waʻa* culture and subsistence expressed in the *moʻolelo* of Kahaʻi and Kapuna influenced the overall formal concept in the design at Hakipuʻu. The history of subsistence and farming from the *moʻolelo* of Kalamakua influenced the formal concept at the Lēahi site.

Concepts from the *pilina ʻōlelo* layer inform the designs at a more specific scale. This layer has greater indications of social interaction and spatial awareness, concepts which are more specifically addressed in later phases of design. These ideas are not as easily understood in the language and likewise require more careful attention to be understood in a space. The *ʻoukou, mākou, lākou* and *kākou* elements appear in the designs at both sites by means of spatial distinction but are not an immediately perceivable design gesture. One would need to experience the actual spaces to grasp how this social distinction is translated into a design.

The *kīpuka* layer is the most difficult to access both in understanding the concepts and how to apply them to design. As is true in the language, these concepts aren't always perceivable. Likewise, the translation of them into design may be perceived by some, and may never be perceived by others. The expression of the *waʻa* form and functional organization are abstracted in the design at Hakipuʻu. While the design does not take on the appearance of a canoe, it is inherently derived from the *waʻa*. Similarly, while the design at Lēʻahi does not assume the appearance of a *loʻi*, the organization of the spaces and circulation are entirely informed by the *loʻi* system. In both examples, a user may never fully be aware of the *kaona* they are experiencing in a space.

Future Research

There were certain factors which influenced the outcome of this thesis. In researching the *ʻōlelo* traditions of each specific site, the density of available sources necessitated a method for filtering and distilling that information in a deliberate way. These sources range from the oral testimonies of *kupa ʻāina* ʻnative of a particular place,' to the maps that indicate traditional place names, to the stories recorded in the Hawaiian language newspapers. One factor that influences this filtering process is the accessibility of these *ʻōlelo* traditions. It is a daunting task for one person to uncover all of the information that exists about a certain place and ultimately, there may be sources which are overlooked that would more relevantly influence a design for a certain site. The investigation part of this process is an endless one and for the purpose of arriving at a design, one must concede to the constraints of time. Regarding the system of layers established in this research which organizes the ever abundant information available in the Hawaiian language, future research could more explicitly explore the individual tiers of this system as more specific layers could be uncovered in each.

Though the design applications of the findings in this research remain in the conceptual phase, it is paramount to note that this does not limit the potential applications of these findings in later phases of design. The methods and processes can and most definitely should be extended to all phases of design including material selection and the detail design. For example, the sun and its specific path in the sky is significant in the Hawaiian worldview, as evidenced in all three layers of information in the language, translates in both Hakipuʻu and Lēʻahi designs at the conceptual phase. This concept can extend all the way to detail design. Certain design elements not only respond to the path of the sun but physically and more specifically indicate the sun path and its solstices throughout the year at each particular site, perhaps by perforations in the roof or *kiʻi* ʻstatues' deliberately located in the landscape to align with the behavior of the sun. A complete design process entirely informed by the theories developed in this thesis is beyond the limits of this thesis, however, it certainly solicits continued investigation.

This thesis is meant to contribute to the discussion on how to integrate Hawaiian worldview into design in Hawaiʻi through the lens of Hawaiian language as a manifestation of Hawaiʻi and the knowledge of its people. The *ʻōlelo noʻeau* that opens this final chapter appropriately describes this research; *ʻAʻohe pau ka ʻike i ka hālau hoʻokahi* ʻall knowledge is not taught in the same school.' This research represents only one school of thought towards improving the quality of design in Hawaiʻi.

The same concept also applies to the general findings of this thesis in that the knowledge in one context may not apply in another context, that is, the *ʻōlelo* traditions that describe the character of one site are not necessarily relevant at another site. It is the argument of this thesis that place-responsive design directly functions to preserve the integrity of Hawaiʻi as well as perpetuate the stories and traditions that define it. This is the *kuleana* of everyone that lives and benefits from this place and this research establishes a method for addressing this *kuleana* in the context of design.

Bibliography

ʻAha Pūnana Leo, *Kumu Honua Mauli Ola: He Kālaimanaʻo Hoʻonaʻauao ʻŌiwi Hawaiʻi*, Hilo: Hale Kuamoʻo, 2009.

Andrews, Lorrin, and Henry H. Parker. *A Dictionary of the Hawaiian Language.* Honolulu: 1865.

Apple, Russell A. *Hawaiian Thatched House: Use, Construction, Adaptation,* San Francisco: Office of History and Historic Architecture, 1971.

Brown, Deidre. *Māori Architecture: from fale to wharenui and beyond.* New Zealand: Penguin Group, 2009.

Clarke, Georgia and Paul Crossley. *Architecture and Language: Constructing Identity in European Architecture c. 1000-c.1650*. Cambridge: Cambridge University Press, 2000.

Desha, Stephen, Lōkahi Antonio, and Brooke Parker. *He moʻolelo kaʻao no Kekūhaupiʻo ke koa kaulana o ke au o Kamehameha ka Nui.* Hilo, Hawaiʻi: Hale Kuamoʻo, 1996.

Edith Kanakaʻole Foundation, *Papakū Makawalu*, Accessed March, 2013). https://www.edithkanakaolefoundation.org/current-projects/papaku-makawalu/.

Elbert, Samuel H. and Mary Kawena Pukui. *Hawaiian Grammar*. Honolulu: University Press of Hawaii, 1979.

Elbert, Samuel H. and Noelani Mahoe. *Nā Mele o Hawaiʻi Nei: 101 Hawaiian Songs*. Honolulu: University of Hawaii Press, 1975.

Emory, Kenneth P. "Launching Hōkūleʻa," Hawaiian Voyaging Traditions, Accessed May 2013. http://pvs.kcc.hawaii.edu/ike/kalai_waa/launching_hokulea.html.

Fornander, Abraham. *Fornander Colleciton of Hawaiian Antiquities and Folk-Lore.*Edited by Thomas G. Thrum. Translated by Thomas G. Thrum. Vol. IV. Honolulu: Bishop Museum, 1918-1919.

—. *Fornander Collection of Hawaiian Antiquities and Folk-Lore*. Edited by Thomas Thrum. Translated by Thomas Thrum. Vol. V. Honolulu: Bishop Museum Press, 1917.

—. *Fornander Collection of Hawaiian Antiquities and Folk-Lore.* Third Series. Edited by Thomas G. Thrum. Translated by Thomas G. Thrum. Vol. VI Honolulu: Bishop Museum Press, 1919-1920.

Gutmanis, June. *Na pule kahiko: ancient Hawaiian prayers*. Honolulu, Hawaii: Editions Limited, 1983.

Handy, E.S. Craighill and Elizabeth Green. *Native Planters in Old Hawai'i.* Edited by Genevieve A. Highland and Sadie j. Doyle. Honolulu, HI: Bishop Museum Press, 1972.

Handy, E.S. Craighill and Mary Kawena Pukui. *The Polynesian Family System in Ka-'u, Hawai'i*, Charles E. Tuttle Co., Inc., Tokyo, 1972.

Hawaiian Studies Institute, O'ahu: Pre Mahele moku and ahupua'a [map] scale unknown, 1987.

Ka Haka 'Ula o Ke'elikōlani, *Lehua 'Āhihi*, Hilo: Hale Kuamo'o, 1997.

Kame'eleihiwa, Lilikalā. "Kumulipo." PDF file. 1999. Accessed December, 2013. http://www.geo.cornell.edu/hawaii/AIS3400/Kameeleihiwa_L_Kumulipo.pdf.

Kamehameha Schools. "Ka'iwakīloumoku: Hawaiian Cultural Center," Accessed March, 2013. http://apps.ksbe.edu/kaiwakiloumoku/.

—. *Ka'iwakīloumoku Hawaiian Cultural Center Event Brochure.* Accessed December, 2013. http://apps.ksbe.edu/kaiwakiloumoku/hcc/Opening.

Kamehameha III. *Buke Kakau Paa no ka mahele aina i hooholoia iwaena o Kamehameha III a me na lii a me na konohiki ana Hale Alii, Honolulu, Ianuari, 1848.* 1848.

Kanahele, Dr. Pualani Kanaka'ole. *Kūkulu ke Ea a Kanaloa: The Culture Plan for Kanaloa Kaho'olawe*. Edith Kanaka'ole Foundation, 2009.

—. *Ka Honu Ola: 'Eli'eli Kau Mai*. Honolulu: Kamehameha Publishing, 2011.

—. "Papakū Makawalu Part 1," Vimeo video, 41:39, posted by The Kohala Center, 2009, http://vimeo.com/4621142.

Kāne, Herb Kawainui. "In Search of the Ancient Polynesian Voyaging Canoe (1998)," Hawaiian Voyaging Traditions. Accessed May, 2013. http://pvs.kcc.hawaii.edu/ike/kalai_waa/kane_search_voyaging_canoe.html.

Kepelino, edited by Martha Warren Beckwith. *Kepelino's traditions of Hawaii*. Honolulu: Bernice P. Bishop Museum, 1932.

Kondo, Maurice. "Designing for Hawaiian Culture Education." Presentation, Pacific Building Trade Expo from Hawai'i Convention Center, Honolulu, HI, October, 2012.

Last, Nana. *Wittgenstein's House*. New York: Fordham University Press, 2008.

Lopes Jr., Robert Keawe. "Ka Waihona A Ke Aloha: Ka Papahana Hoʻoheno Mele, an Interactive Resource Center for the Promotion, Preservation and Perpetuation of Mele and Mele Practitioners." PhD diss., University of Hawaiʻi at Mānoa, 2010.

Lucas, Paul Nahoa. "*E Ola Mau Kākou I Ka ʻŌlelo Makuahine*: Hawaiian Language Policy and the Courts." *The Hawaiian Journal of History,* vol. 34 (2000): 1-28.

Malo, David. *Hawaiian Antiquities: Moʻolelo Hawaiʻi*. Translated by Nathaniel B. Emerson. Honolulu: Bishop Museum Press, 1951.

Malo, Davida. *Ka Moolelo Hawaii*. Translated by Malcolm Nāea Chun. Honolulu: First People's Production, 2006.

Meyer, Manulani. "'Ike ʻĀina: Sustainability in the context of Hawaiian epistemology," Vimeo video, 1:05:02, posted by The Kohala Center, 2009, http://vimeo.com/7910477.

Mina Najafi, and Mustafa Kamal Bin Mohd Shariff. "The Concept of Place and Sense of Place in Architectural Studies," *International Journal of Human and Social Sciences* 6:3, 2011.

Nakuina, Moses K, Esther T. Mookini, and Sarah Nākoa. *The Wind Gourd of Laʻamaomao: The Hawaiian Story of Pākaʻa and Kūapākaʻa : Personal Attendants of Keawenuiaʻumi, Ruling Chief of Hawaii and Descendants of Laʻamaomao*. Honolulu, HI: Kalamakū Press, 2005.

Ngũgĩ wa Thiong'o. *Decolonising the Mind: the Politics of Language in African Literature*. London: J. Currey. 1986.

Nordyke, Eleanor and Martha Noyes in '"Kaulana Nā Pua": A Voice for Sovereignty,' *The Hawaiian Journal of History*, vol 27, 1993.

Oliveira, Katrina-Ann R. Kapāʻanaokalākeola Nākoa. "Hōʻike Honua: He Mana ko ka ʻŌlelo," *Hūlili: Multidisciplinary Research on Hawaiian Well-Being, Vol. 7* (2011), 52.

Omandam, Pat, Honolulu Star-Bulletin Local News. "Hawaiian style: The University of Hawaii's new Center for Hawaiian Studies is a showcase of the island's cultural heritage." Accessed March, 2013. http://archives.starbulletin.com/96/08/13/news/story1.html.

PBR Hawaii. *Palapala Hoʻonohonoho Mokuʻāina O Kahoʻolawe" Kahoʻolawe Use Plan*. Kahoʻolawe Island Use Plan, Kahoʻolawe Island Reserve Commission, State of Hawaiʻi, Honolulu: State of Hawai'i, 1995.

Perreira, Hiapokeikikāne Kichie. "He Haʻiʻōlelo Kuʻuna: Nā Hiʻohiʻona me nā Kiʻina Hoʻāla Hou i ke Kākāʻōlelo." PhD diss., University of Hawaiʻi at Hilo, 2011.

Pukui, Mary Kawena. *ʻŌlelo Noʻeau: Hawaiian Proverbs & Poetical Sayings*, Bishop Museum Press, Honolulu, 1983.

Pukui, Mary Kawena and Samuel H. Elbert. *Hawaiian Dictionary: Hawaiian-English, English-Hawaiian*, University of Hawaiʻi Press, Honolulu, 1986.

Pukui. M. K., S. H. Elbert, and E. T. Moʻokini. *Place Names of Hawai'i*. Honolulu: University of Hawaiʻi Press. 1966.

Pukui, Mary Kawena, Laura S. Green. *Folktales of Hawai'i: He Mau Ka'ao Hawai'i.* Honolulu: Bishop Museum Press, 1995.

Pukui, Mary Kawena, E.W. Haertig, M.D., and Catherine A. Lee. *Nānā i ke Kumu (Look to the Source) Vol. I*, Honolulu: Hui Hānai, 1972.

—. *Nānā i ke Kumu (Look to the Source) Vol. II*, Honolulu: Hui Hānai, 1972.

Schütz, Albert J. *The Voices of Eden: a history of Hawaiian language studies*. Honolulu: University of Hawaii Press, 1994.

Simmons, David. *The Carved Pare, A Māori Mirror of the Universe.* Wellington: Huia Publishers, Aotearoa, 2001.

Sterling, Elspeth P, and Catherine C. Summers. *Sites of Oahu*. Honolulu: Dept. of Anthropology, Dept. of Education, Bernice P. Bishop Museum, 1978.

Tauroa, Patricia. *Māori Phrasebook & Dictionary.* New Zealand: HaperCollinsPublishers, 2006.

University of Hawaiʻi Hilo. "College of Hawaiian Language marks new chapter with historic groundbreaking," UH Hilo Press Release, February 2011. Accessed March, 2013. http://hilo.hawaii.edu/news/press/release/1037.

—.PDF file. Accessed March, 2013. http://www.uhh.hawaii.edu/uhh/planning/uploads/HawaiianLanguageCollege_pres_220.pdf

—. "College of Hawaiian Language Building Wins Prestigious Design Award," Accessed March, 2013. http://vcadmin.uhh.hawaii.edu/documents/AIAAwardforCHLBuildingDesign_ForPosting_000.pdf .

University of Hawaiʻi at Mānoa Hawaiʻinuiākea School of Hawaiian Knowledge, "Kamakakūokalani Center for Hawaiian Studies," Accessed March, 2013. http://manoa.hawaii.edu/hshk/index.php/site/acad_studies/en/.

Hawai‘inuiākea School of Hawaiian Knowledge. “Kamakakūokalani.” Accessed December, 2013. http://manoa.hawaii.edu/hshk/kamakakuokalani/history-op/.

Wai‘ale‘ale, D.K., *He Buke Kilokilo Hale*, Hawaii State Archives. 1834.

WCIT Architecture. “University of Hawai‘i at Hilo Ka Haka ‘Ula o Ke‘elikōlani College of Hawaiian Language: Design Progress 1.12.2010.” Accessed March, 2013. http://www.uhh.hawaii.edu/uhh/planning/uploads/HawaiianLanguageCollege_pres_220.pdf

Author unknown. “Abcde.” BabyNames.com. Accessed December, 2013. http://www.babynames.com/name/Abcde.

Author unknown. “Parts of the Lo‘i,” Welina Mānoa. Accessed May, 2013 http://welinamanoa.org/ka-papa-loi-o-kanewai-2/parts-of-the-loi/.

Appendix 1

Table of Hawaiian Words and Phrases

Hōʻike ka ʻŌlelo i ke Kuanaʻike

The language reveals the world view

Ka ʻāina, ke kai, a me ka lewa

The land, the sea, and the air

aʻo aku, aʻo mai teach, learn

ahupuaʻa traditional Hawaiian land division

ʻāina land

akua god or gods

alelo tongue

aliʻi high chief

aloha ʻāina love for the land

ʻawa kava plant, root has narcotic qualities, used for ceremonial drink or offering

haʻawina lesson

hale house

hālau meeting house

Hāloa original ancestor of Hawaiian people

heiau temple, place of worship

hula pā platform for hula

inoa name

inoa kūamuamu insult name

inoa kupuna ancestral name

inoa pō night name

i/ma in, on, at, toward

kaʻao story characterized by fantasy and morals

kahua foundation, site, location, platform, as of a house

kahuna priest

kākāʻōlelo Hawaiian oratory tradition; orator

kanaka man, person

Kānaka Maoli indigenous people of Hawaiʻi

kaona hidden meaning

kauhale group of houses comprising a Hawaiian home

kīpuka variation or change of form…opening in forest, opening in cloud formation

koko blood

kuanaʻike Hawaiʻi Hawaiian worldview

kuhikuhipuʻuone seer, soothsayer, necromancer, especially a class of priests who advised concerning building and locating of temples, homes, fish ponds, hence a professional architect

kuleana responsibility

kumu hula hula teacher

kupa ʻāina native of the land

kūpuna elders

loʻi irrigated terrace

loʻi kalo irrigated taro patch

loko iʻa fishpond

Lono god of agriculture

Makahiki season of peace and celebration of harvest

ma kai/makai seaward

makawalu eight eyes

mana divine power

mele song

moʻokūʻauhau genealogy

moʻolelo story

nā ana kino traditional Hawaiian system of measuring using the body

naho type of kahua; hollow; also called naho-manini

ʻohana family

ʻōhiki type of kahua full of holes; sand crab

ʻōlelo language, speech

ʻōlelo Hawaiʻi Hawaiian language

ʻōlelo Makuahine Hawaiian language, lit. mother tongue

oli chant

Papakū Makawalu Hawaiian methodology of researching and organizing the universe

pāhoehoe smooth, unbroken type of lava

pani to close, shut

pepeiao ear

pilina ʻōlelo related through language

piko navel, origin, center

pule to pray

ʻulu breadfruit

unuhi to take out, translate

waʻa canoe

waha mouth

Table of Māori Words and Phrases

amo vertical supports at ends of maihi

Aotearoa Māori name for New Zealand

hapu sub-tribe

Hawaiki nui, Hawaiki roa, Hawaiki pamamao origin of Māori people in Māori lore

heke rafter

iwi tribe

kai feast

koruru/tekoteko carved face at apex of gable of a house

kūwaha wharenui door

maihi bargeboards on the gable of a house

manaakitanga Māori hospitality

Māori indigenous people of New Zealand

manuhiri visitor, foreigner

marae courtyard; open area in front of wharenui

marae ātea the space outside and in front of the wharenui

paepae physical threshold of the wharenui

Pākehā New Zealander of European descent

Papatūānuku earth mother

pare lintel over wharenui door

poupou upright slabs forming framework of walls; interior wall carving

poutokomanawa central pole supporting ridge pole of wharenui

powhiri ceremonial protocol performed to lift the tapu from visitors to a marae

Ranginui sky father

Rongomātāne god of peace

tāhuhu ridgepole of a house

Tānemahuta god of the forest, born to Rangi and Papa

Tangaroa god of the sea and water

tāngata whenua native people of a place

tapu taboo

tēnā koe Māori greeting, hello

te reo Māori Māori language

Tūmatauenga god of war

waka canoe

whaea elder female of a marae

whakawae vertical members of doorframe

whānau family

wharenui meeting house